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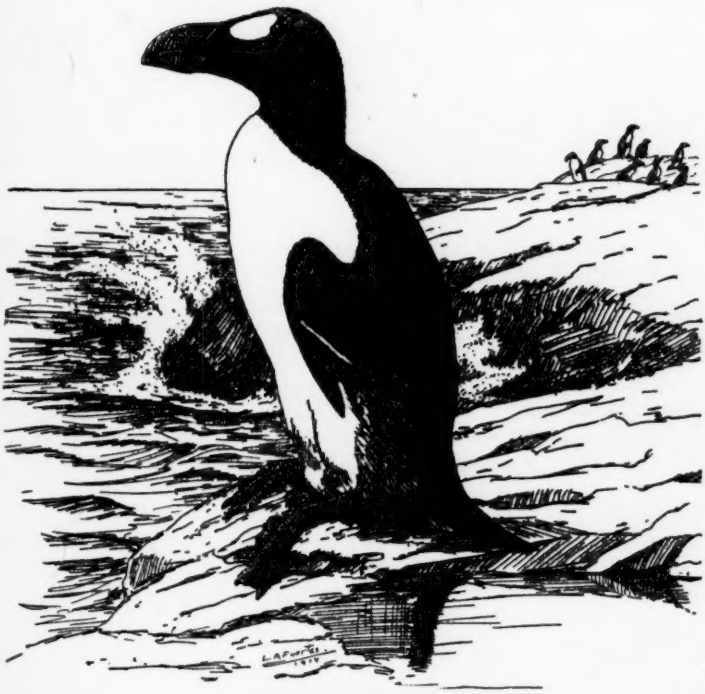

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Yours sincerely,
Arthur T. Wayne.

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IN MEMORIAM: ARTHUR TREZEVANT WAYNE.[1]

1863–1930.

BY ALEXANDER SPRUNT, JR.

(*Plate I.*)

DURING the dark days of the early '60s a family moved from the old city of Charleston, South Carolina, to take up a temporary residence away from the dangers of war, at Blackville, a little town some 80 miles from the coast. On January 1, 1863, a boy was born to this family and his name was Arthur Trezevant Wayne. From that tiny infant, brought into the world during an upheaval which shook his country, grew South Carolina's premier ornithologist. Never, from his boyhood days, was there any doubt as to his future, he was born to be what he was, he could never have been anything else.

Arthur T. Wayne was the son of Daniel Gabriel Wayne and Harriott Ward Wayne; he came of a distinguished stock and he gloried in that ancestry. Often did he say that he was two fifths English, two fifths Scotch and one fifth French Huguenot. His training was rigid, his Presbyterian mother seeing to it that the Shorter Catechism and the grand old hymns of her church were essential parts of her son's upbringing. His father was a Christian gentleman, ruggedly faithful to his duty, scrupulously meticulous in his field of architecture and building; an upright, sterling character who cared for nothing but the right. Ever did the son revere

[1] Read at the Salem meeting of the A.O.U. October 21, 1930.

and honor their memory, proud was he of their lineage and devotion and they lived to see him far on the road to prominence in the field of American science.

The Wayne's residence in Blackville terminated just after the War Between the States, they having removed to Charleston during the unsettled days that followed. Those troublous times weighed lightly on the mind of the boy; he occupied his time as boys do and will, carefree and without worry. His education began early, his parents placing him in the school of a cultured Charleston woman in 1869. Several years there prepared him for further learning and in 1876 he entered high school. Southern boys had little opportunity then, for many reasons, of obtaining a college education. Money was scarce and work was a necessity. It transpired shortly, however, that young Wayne was not kindly disposed toward business. Even in his school days the out-doors appealed to him with irresistable force. In the afternoons he delighted to bog with his companions, in the nearby creeks where Marsh Wrens nested; he gloried in climbing the huge live oaks to investigate the home life of Grackles, the "Jackdaws" of the low country school boys, while a collection of eggs was a prized possession carefully guarded in the attic of the big house on East Bay Street. Notwithstanding the many hours he spent afield, he stood well in his classes and completed his high school training with honors in 1880.

Upon his graduation young Wayne was faced with stern realities. As delightful as his outside pursuits were to him he was forced to give them up as a place was secured for him at the Barden & Murdock Company, an establishment dealing in cotton and naval stores. A short experience with that firm was not of benefit to either of the parties concerned and was followed, in 1883, by a connection with the firm of Lesesne & Wells, another cotton establishment. Here, as at the former place, the work was pure drudgery to Wayne and he hated business pursuits with a cordiality that increased daily. The closeness of the office chafed him continually and the more it palled upon him, the more loudly did the voices of the beach amd marsh call. Even as he handled the bills of lading and checked the cotton bales, the visions of his winged tempters were flitting across his mind, blurring the figures and letters which stared at him from the sheets.

The bright spots of his life then were the occasional holidays and spells of spare time in the slack seasons which he divided between the woods and waters and visits to the Charleston Museum. All during his school days, the oldest museum in America had fascinated him extremely. He spent his afternoons there while in school, except when afield, and was devoted with a boy-like adoration to the Director, Dr. Gabriel Manigault. Between this cultured scientist and the growing boy there formed a bond of sympathy and understanding which was welded into lasting friendship. The talented doctor felt the boy's longing and was quick to realize the possibilities that lay pent up in his eager brain which was ever so apt at grasping the mysteries of nature—not nature so much as birds; for it was ever and always birds, and from the very first they appealed to him to the almost total exclusion of every other form of wild life. His association with Dr. Manigault began about 1874 and the latter's companionship and kindly aid were of lasting benefit.

Young Wayne scoured the countryside in search of ornithological specimens for the museum collections and learned the art of skinning birds from John Dancer, an elderly Englishman employed by Dr. Manigault to prepare specimens for the museum. He was an able teacher, and much of his work is still in existence in the museum.

The first specimen Wayne worked upon was a Mockingbird and it is easy to picture the intense concentration of the youth as he followed the various steps in removing the skin and preparing the specimen. If the teacher was able, the pupil was none the less so, and though it is doubtful whether Dancer ever had more than the one pupil, he started that one on a course which led to the production of masterpieces of bird-skinning art. Though crude enough at first, the end of the youth's career saw bird skins which are unsurpassed in any collection in this country.

The staff of the museum in those days consisted of Dr. Manigault and though he would doubtless have delighted in seeing Wayne a full time employe of the institution, no funds were available. The cotton business seemed inevitable, but shortly after the beginning of his work with Lesesne & Wells, an occurrence took place which definitely established Arthur Wayne's future. In 1883 William Brewster came to Charleston on his first visit.

Dr. Manigault, though his scientific interests embraced many more subjects than ornithology, was a close friend of Mr. Brewster and lost no time in telling him of young Wayne. Mr. Brewster evinced an interest at once and Dr. Manigault arranged a meeting. Some of us can realize the emotion which possessed Wayne at his introduction to his first ornithologist of note; he was thrilled to the depths of his being and that acquaintance rapidly ripened into a friendship which endured until the day of Mr. Brewster's death. The meeting set Wayne afire with ornithological zeal, intense though it was before it now occupied his every thought. The difficulty of making a living at ornithology never daunted him, he had an unbounded faith that provision for his wants would be supplied and never was he disappointed.

Besides numerous talks with Mr. Brewster, Wayne had him in the field at every opportunity and his minute knowledge of the coast country was invaluable in visiting the most likely places for birds. Their first joint endeavor was the attempt to re-discover Swainson's Warbler (*Limnothlypis swainsoni*) which had been all but a lost species since its original capture by Dr. John Bachman, of Charleston, in 1833. Neither succeeded that year, but on April 22, 1884, a year later and on the occasion of Mr. Brewster's second visit, the first specimen was taken by Wayne. Mr. Brewster secured one a week later. From that April until September, Wayne secured forty-seven specimens of this bird including young in the first plumage. An account of the habits of this little known Warbler was prepared by Mr. Brewster based on Wayne's specimens, and appeared in 'The Auk' for 1885. Wayne pursued his search after Mr. Brewster departed and on June 6, 1885 discovered the first nest and eggs of *L. swainsoni* known to science. It was Mr. Brewster again who recorded the fact, publishing the record in 'Forest and Stream,' for July, 1885. This nest and eggs now rest in the Smithsonian Institution and constitute Wayne's first outstanding ornithological achievement.

The year 1885 was notable also in that during the summer, Wayne left South Carolina on one of his very few trips outside the State, going to New York by water and returning by way of Washington where he met Mr. Robert Ridgway. Short as was their contact it developed into a lifetime correspondence and the

letters from Mr. Ridgway, together with those of Mr. Brewster, were always among his most treasured possessions.

Shortly after his northern trip Mr. Wayne was married. A simple statement that, but it was another milestone in his life which perhaps, more than any other, insured his rise to ornithological fame. Never did a man chose so wisely and so well; never was there a helpmate whose courage and devotion transcended that of the woman who became his wife. Silently, and without thought of self, she made it possible for him to do what he did, shouldering everything which would detract from his concentration on his work and standing like a bulwark between him and the detailed routine of life. It was June 6, 1889 that Arthur Wayne and Maria L. Porcher were united in marriage at Mt. Pleasant, South Carolina. Mrs. Wayne is the daughter of Philip Edward Porcher and Elizabeth Palmer Porcher. She was born on Oakland Plantation, Charleston County and still lives within a mile of the two century old dwelling in which she first saw the light of day.

The first home of the young couple was in McPhersonville, South Carolina, a little pineland village between Charleston and Savannah. Here Wayne collected assiduously for several months, for he had long since devoted his entire time to ornithology, having definitely abandoned a business career. Mrs. Wayne's health caused them to return to Oakland Plantation after a short while and they resided there with her parents. The plantation borders the great salt marshes of the low coast country which lie between the mainland and the chain of out-lying barrier islands. It was a spot which drew Wayne like a magnet and on a beautiful point on the edge of a widely reaching sound, about a mile and a half from the plantation dwelling, the two moved into a smaller house owned by Mr. Porcher. "Snug Harbor" they called it and in it spent six years of happy work. Mr. Porcher had another house on a nearby point in which it was customary for the family to spend the summer months, and to be nearer to them, the Waynes built a permanent home of their own a stone's throw away, on the bluff which now bears the father's name. They moved into this house in 1900 and to this day, the Villa-by-the-Sea is Mrs. Wayne's home. Here they worked and here he died, a place to whose hospitality many have been welcomed and still are. A house

whose guest book reads like a social register and scientific directory and the paths to which have been beaten from every part of the country.

It was during the years just before they built their home that Wayne did his only work outside the State. In 1892, accompanied by Mrs. Wayne, he made his first trip to Florida, first at Branford where he collected in the vicinity from March to August. Then, in November, he was at Old Town on the Suwanee River where he procured many Ivory-billed Woodpeckers (*Campephilus principalis*). In 1893 near Kissimmee he collected Carolina Paroquets (*Conuropsis c. carolinensis*) and in early 1894 he visited the Indian River in search of Manatee for Professor Ward but was unsuccessful in securing specimens. These Florida trips constituted his only absences from coastal South Carolina in ornithological collecting except for a brief trip to the Piedmont section of the State where he saw, but did not collect, specimens of the Passenger Pigeon (*Ectopistes migratorius*).

Mr. Wayne's continuity of field work has seldom, if ever, been equalled. Except for absences in North Carolina on three occasions due to impaired health, he was constantly afield. No stress of weather was too severe to deter him, he never even visited the rural mail box without his gun and on the way to and from it many a rare specimen fell to his ready aim. For forty-five years he was in the field of intimate communication with birds and his knowledge of them was almost uncanny. He seemed to understand their very moods, he was never at fault in identification and came as near to absolute accuracy in everything as is possible for a human being. Day after day he was out from early morning until darkness, while at home, keeping watch over their house and its ornithological treasures, was his devoted wife who oftimes suffered because of his unknown whereabouts. "I have spent many anxious hours," she says, "waiting for him to come home when a gale arose or cold weather suddenly set in after he left the house."

His means of transportation consisted of walking, rowing, or rarely riding in a buggy. He covered hundreds of miles by these means. One of his favorite haunts was a small island in the Wando River which was reached by a five mile walk and three mile row each way. On one trip there in January, when he climbed a

gigantic pine to examine a nest of the Bald Eagle (*Haliaeatus l. leucocephalus*), he narrowly escaped death when he slipped upon an ice-covered limb a hundred feet above the ground. He caught himself on a cleat which he had previously nailed to the trunk during his ascent, scraping the skin from his face and giving his arms a severe wrench. One would think that such an experience would have banished further thirst for knowledge of that nest, but no, he secured the eggs and came down safely though he was all but exhausted when he reached the ground. Stretching out at full length for a while, he regained his breath and on the way home, turned aside at a small pond and secured a brace of Black Ducks for supper!

Personal discomfort and imminent risk of sickness meant nothing to Wayne when in pursuit of birds. One freezing afternoon he flushed a Short-eared Owl (*Asio flammeus*) a mile or two from his home and, for a wonder, failed to drop the bird which he wanted for his collection. It flew straight out into the salt marshes and alighted amid them about half a mile away. Nothing daunted, Wayne returned to the house, called a little negro boy who was working in the yard and shoving off his rowboat, set out in pursuit. The distance was longer than he thought and it was much colder on the marshes than ashore. He secured the Owl but he was thoroughly wet and chilled when he returned. The experience kept him in the house for two weeks and he barely escaped pneumonia.

He was ever partial to the barrier islands and they constituted his favorite hunting grounds. These strips of land stretch like a chain from Cape Romain to the Savannah River and, together with the sounds, mud banks and marshes between them and the mainland, never failed to yield him something of value. It was among them that he added to the avifauna of the state such species as the Harlequin Duck (*Histrionicus histrionicus*), the Turnstone (*Arenaria interpres*) and the Ipswich Sparrow (*Passerculus princeps*). His home lies directly behind the inlet which divides the Isle of Palms from Dewees Island, the latter now owned by his friend Coulter D. Huyler of New York, and it was on a trip to this beach only three or four years ago that he had one of the most trying experiences of his life.

Together with two enthusiastic feminine lovers of the out-doors,

he set out for Dewees Island on a morning which, though in midwinter, was only pleasantly cool. The balmy day turned, in the late afternoon, to one anything but balmy. A sudden squall arose which lashed the sound into a veritable sea of angry waves, an early darkness set in accompanied by a sleet storm. They pushed off from the island amid a smother which was confusing, the small boat nearly swamped a dozen times before they reached the marshy creek and by that time the darkness was intense. Unable to see anything a few feet away, they ran upon a mud bank on the ebb tide and remained immovable. Throughout the whole long freezing night they alternately attempted to push the boat off from the clinging mud and rubbed each other's limbs to fight off the deadly chill. While barely a mile from the house on the bluff, they might as well have been a score. Without the protection of overcoats, they shivered there until it seemed that outraged nature could stand no more. Then, in the gray dawn, with the aid of the rising tide, they shoved off the bank and got their bearings.

Nearly crazed with anxiety and all but certain that they had been drowned, Mrs. Wayne greeted them as returned from the dead and in front of a roaring fire they warmed their frozen limbs while cups of scalding coffee seemed none too hot for inner refreshment. Certain it is that the two bird women, who may even now be listening to this account for they are often at the annual meetings of the Union, will remember that night with varied emotions as long as memory lasts.

More than any other one fact, Wayne's life work has clearly demonstrated what may be done by a single observer in a restricted locality. Other than on his Florida trips the great bulk of his ornithological findings were made within twenty miles of his house. He stands alone in this regard among all of America's ornithologists. He was, unquestionably, the South's foremost bird man as well as his State's premier son of science. He stood in the front rank of the country's greatest but in concentrated radius of activity and results achieved, he stood alone. Consider the fact that he identified, captured and recorded birds of the Pacific northwest in his own front yard. On his beloved islands, close at hand, he recognized species which were European in range. It is true that he had an excellent country to work, situated in an ideal manner for

the migrations, but he used these advantages as no one else in Carolina.

His accomplishments in so narrow a territory constantly amazed the ornithologists who visited him, and they were many. His wonderful accuracy in field identification astounded men who were adepts themselves. This faculty was more apparent perhaps, in the Sparrows than in any other group of birds. The adjacent marshes teem with the salt water species while the broom grass fields about his home harbored many others. No sooner would one appear, even for but a moment, than it was instantly named and the taking of the specimen always verified the identification. Wayne was very partial to the Ipswich Sparrow (*Passerculus princeps*) and walked many a mile among the yielding sand dunes of the Isle of Palms in search of data on this species. He could tell the sex of the birds at a glance, just how one cannot say, but that he knew was undoubted. The pale dwellers of the dunes were wary and shy at all times but they could not elude him. One prominent ornithologist on hearing Wayne name the sex of a Sparrow he had just killed, was convinced that it was simply a statement of unwarranted assurance, but when dissection proved him correct, not once but many times, his words were taken differently.

His meticulous care of a specimen in the field was painstaking to a degree. Should any feathers have been shot away he would crawl about until he found all of them possible. On many a beach and amid many a broom grass field have I aided in such a search, wondering the while at the thoroughness of the man. Every feather would be replaced with the finest thread during the preparation of the specimen and the skins were perfections of beauty. He wanted the bird as nearly as possible as it was in life, and he labored toward that end with no regard for personal fatigue. He was not a fast worker, time meant nothing at all to him, he would spend hours on the commonest bird and the result was always the same. The removal of any foreign matter on the feathers was so complete that he used to say that nothing remained which should not be there even to the "size of a cambric needle's point." His devotion to his skins was remarkable, amounting almost to adoration. He handled them as one handles a rare

jewel, tenderly, reverently. He was ever ready and willing to show them to anyone but it was thoroughly understood beforehand that he alone was to handle them. Though kept in a variety of receptacles, he rarely experienced any inroads from insects and in going over the collection after he was gone, the writer found birds which had been packed away for many years, in perfect condition.

It is not surprising that in the years he studied the birds of the low country, he found things which no one else had noticed. A result of this was the establishing of two sub-species which bear his name, Wayne's Clapper Rail (*Rallus longirostis waynei*) described by William Brewster and Wayne's Warbler (*Dendroica virens waynei*) described by Outram Bangs. Though it thrilled him deeply to take such birds as the Green-tailed Towhee (*Obesholseria chlorura*) and Sprague's Pipit (*Anthus spraguei*), thousands of miles from their normal range, it was the re-discovery of Bachman's Warbler (*Vermivora bachmani*) in South Carolina that afforded him more pleasure than anything else. Discovered by Dr. John Bachman near Charleston, in July, 1833, and named for him by Audubon, this Warbler apparently dropped out of existence in the State until 1901. It was Wayne who found it again, in a huge swamp some twenty miles from his home and several birds, nests and eggs were taken by him there. Though not of such outstanding significance, his finding of the first nest and eggs of the White Ibis (*Guara alba*) in South Carolina, gave him a thrill only secondary to the rediscovery of the Warbler. It was the privilege of the writer and his brother to be his companions on this memorable occasion and the exultant vindication of a theory long entertained was worth much to witness. The colony was located in a beautiful cypress backwater on May 22, 1922, and the sight of the clamoring concourse of snowy birds, their black-tipped wings and decurved crimson beaks flashing against a background of vivid green made a picture which is almost as clear today as it was at the time. I have visited the cypress stronghold of the Ibises many times since, the last times after their discoverer had passed on, but the place will ever be connected in my mind with him, even as will the sight of the birds themselves.

Though Mr. Wayne frequently contributed items of his study and observation to 'The Auk,' it was only at the insistent urgings

of his friends that he decided to incorporate his extensive knowledge in book form. In 1910 the 'Birds of South Carolina' was published, with Wayne as the author and the Charleston Museum as publisher. The then director, Dr. Paul M. Rea, rendered Mr. Wayne much aid in the preparation of the book by assuming the necessary mechanical details. The work is a comprehensive treatise on the birds of the coast region, together with a list of those occurring in the upper portion of the State. Mr. Wayne did not hesitate to point out errors which had been made by earlier observers amd when one considers that they had but skimmed the surface while he delved deeply over the same ground, it is not strange that his indefatigable research for the truth resulted in conclusions varying from theirs. The book reveals the orderliness and continuity of the author's mind and compels admiration because of its classical diction and unswerving accuracy. It is the standard work among scientists on the birds of the State and an invaluable aid to the student engaged in the study of southern birds. Wayne and others have made many additions to the knowledge of South Carolina birds since the book was published, and it is hoped that a supplement covering his and others' observations since 1910 will soon be issued, thus bringing the work up to date.

In the days of the earlier ornithologists it was not so difficult to add new birds to a certain locality, but increasing numbers of observers and the furtherance of general knowledge makes this constantly harder to do. To give a bird's-eye view of Wayne's work in South Carolina, a clear idea of his efforts may be obtained when it is known that, in the forty-five years he was in the field he added a bird a year to the avifauna of his State. Not literally of course, but that is the average of his life's work. In this day and time the fact speaks volumes for the man's unflagging vigilance and zeal. So much then, for Wayne the ornithologist.

It was Wayne, the man, who endeared himself in a remarkable, degree to those who knew him. It is true that Wayne, the ornithologist, in his intense zeal for accurate knowledge had differences with some through correspondence. It is a tribute to Wayne, the man, that in every case where personal contact was made by those who had experienced his criticism, they were completely won over

by his magnetic personality and generous spirit. It was ever accuracy which he fought for and he abhorred nature fakirs as he he abhorred all liars. He knew that no good could ever come of distorting facts, he followed science because it is fact and if ever there was a searcher after truth, it was Arthur Trezevant Wayne. He often said that he had been told he could have been a millionaire if he had applied himself to business with the earnestness he exhibited in science. It was Mitya, in Dostoyevshy's novel, 'The Brothers Karamazoff,' who said "I don't want millions; all I want is an answer to my questions." Wayne found his answer in ornithology, he gave it his life and he found much in return. He was never blinded by what he discovered and he never sought publicity.

Small in stature, he was great in mind and spirit, a greatness which is detached from the money-seeking, notoriety-loving efforts of those of to-day who aspire to so-called greatness. Never robust, he was a machine of endurance and rose above his apparent frailness in a way which amazed his field companions and tired them to keep up with him. He always took care of himself and never did anything to excess. Although he lived apart from cities and towns he never lost touch with the outside world; though he never indulged in novels and light reading he devoured the daily papers, the 'Literary Digest,' and the 'National Geographic Magazine.' His knowledge of other parts of the world was profound, it was like listening to a world traveller to hear him talk. The far north fascinated him extremely and the minute details of the expeditions which penetrated to the land of eternal ice were as familiar to him as though he had recorded them from personal observation. He was constantly and thoroughly up on current events, evincing a peculiarly clear insight into many channels far removed from birds. He deplored the lawlessness so current in America and condemned the evil doers in no uncertain terms. I well remember his intense indignation at the demonstrations at the time of the Sacco-Vanzetti trial, and he followed the political developments of the day with remarkable clearness.

His culture embraced much more than ornithological science. He read the poets frequently and his marvelous memory captured the scores of many operas. Byron was his favorite and he knew

every word of Childe Harold besides many other productions of that great writer. Though able to repeat many operas he never left his home to hear one; he delighted in classical music and had a splended voice himself. Music can be said to have been his second love and genealogy amounted almost to a passion. The family connections and history of every prominent Charleston family, and many which are not, were as an open book to him and his long membership in the South Carolina and Huguenot Societies resulted in his being referred to time and again for the settlement of doubtful points.

It was probably his memory which left the greatest impression on his visitors. I have heard many say that they never encountered such a mental command of past events. It really seemed that he never forgot anything. Faces which he had not seen for a score of years, names which had not come up for decades, the dates of a thousand and one happenings, all were recalled instantly and accurately as occasion arose. In his birds, one could point to any at random and ask about it, the date, locality, circumstances and sex would be forthcoming at once and examination of the label would invariably corroborate his statements. His store of knowledge was always at the command of every student of ornithology and his companionship in the field, together with his advice and teaching, were invaluable aids to the members of the scientific staff of the Charleston Museum. His position of Honorary Curator of Birds in that institution he valued highly, and as in the old days, he was ever ready to do anything for the collections.

His scientific friends were legion; his correspondence voluminous and he kept all letters of his friends. An examination of their contents would be of consuming interest to any interested in the field of ornithology. Because of his never leaving his home for northern points, or indeed any other points, he made personal contact with comparatively few of the country's foremost ornithologists but he knew them well by correspondence. He never forgot the visits paid him by those who did come south at times and he gloried in having any bird man visit his home.

It is a striking tribute that, although he never attended a single annual meeting of the American Ornithologists' Union, he was elected a Fellow in recognition of his merits and sterling qualities.

For many years he held the rank of Member and it was at the forty-sixth stated meeting of the Union at Charleston in November, 1928 that he was elevated to the top rank among the organization's distinguished sons. It was an inexplicable providence which prevented his attendance at this gathering in his own home town, for he was absent on account of sickness at the time. Many here, however, will remember his telegram of thanks which was read at the annual dinner and the universal joy which pervaded the meeting at the honor accorded him.

The loss of Arthur T. Wayne leaves a place in ornithology which as it has been said will be difficult to fill. I say that it can never be filled. The State has lost one who was ever a loyal and devoted son, historically, scientifically and personally. The Union has lost one who ever strove to uphold its highest ideals. To those who knew him the loss can never be measured in words. In his going, the writer lost a friend and more than a friend. Though old enough to be his father, there was an association to which age was as nothing so far as being a barrier was concerned. A faithful, patient teacher, a kind and generous adviser, he overlooked his pupil's faults and frailties to leave behind him a memory which is ever more enduring and sacred as time goes by.

Many will remember Wayne for his sympathy. It was deep and keen in many ways; his sympathy for his friends in times of stress, for the birds in their multitudinous vicissitudes, and for the forests which he mourned as they steadily decreased about him. He loved trees almost as much as birds for on them depended the latter's life. Thoroughly alive to the needs of civilization, he nevertheless deplored the lumbering industry and deforestation was a thorn in his side. He mourned the passing of a tree as a tragedy. Often have I seen him stand and survey the stump of what had been a gigantic pine and say sorrowfully, "There is the work of God Almighty for a hundred years undone by two niggers with a cross-cut saw in twenty minutes." I never heard him say it but that it impressed me more each time.

His home is still a place which welcomes any who may come. The latch-string of the "Villa-by-the-Sea" is always open, for Mrs. Wayne is ever glad to see her husband's friends and hers. Strong in her faith, unshaken in her dependence upon that inscru-

table Will which has taken her husband from her to his reward, she is even more of an inspiration and wonder to her friends than ever. One cannot but think of her when he is spoken of; they were one as few couples ever were. His dependence on her cannot be overestimated as those who have stayed under their roof can testify. No sooner would he come in from the field than his first act would be to call for her. He appealed to her for confirmation of every act and statement and nobly did she do her part. His very rise to scientific fame and his every success must be traced back at last to that unswerving bulwark of strength and Christian womanhood which is so beautifully personified in her.

Though not far advanced in years, the return of an ailment from which he had previously suffered, caused a cessation of his field work in the early part of 1928. A resuming of remedies which had proved efficacious in the past seemed to be of benefit and he responded in a manner which won the approval of his devoted physicians, whose admiration and regard for him was that of brothers. In the fall of 1929 he was at home, apparently recuperating in a satisfactory manner. Visitors found him returning steadily to his vivacious and versatile self and in the spring of this year (1930) he was on the point of taking the field again.

On the afternoon of May 5, 1930, the writer and two companions journeyed to the Wayne home for a little visit. Rarely was he more cheerful and bubbling over with good spirits. Birds, poetry and genealogy were discussed freely for some time then an adjournment to the bird room followed where he began exhibiting some specimens. It was while engaged in this act that he was stricken, literally in the midst of his beloved birds, with one of them in his hands. In barely more than thirty minutes he was unconscious and just before 8 p.m. his spirit fled and the morning papers told the country of his passing.

The funeral took place the following afternoon. As his sorrowing friends followed the hearse which bore all that was mortal of Arthur Wayne along the sandy roads of his beloved low country, the birds themselves seemed to voice their Spring song with a thrilling sweetness as though they were participating in the last sad rites to a friend who had loved them to the end. Few, if any, of the assembled company missed the appropriateness of the strik-

ing symphony which echoed from the surrounding woodland as the strains of Warblers, Vireos and Wrens floated softly over the last sad scene, an earthly echo of that angelic choir in which the departed one was even then joining in eternal praise.

Arthur Trezevant Wayne has gone but he has left behind, enshrined in many a heart, a living monument and, like the patriarchs of ancient days, "He, being dead, yet speaketh."

Charleston, S. C.

EXPERIMENT IN THE RECOLONIZATION OF THE COMMON TERN[1] (STERNA HIRUNDO).

BY C. F. JACKSON AND PHILIP F. ALLAN.

DURING the summer of 1929 an attempt was made at the Marine Zoological Laboratory at the Isles of Shoals to establish a colony of Terns (*Sterna hirundo*) on North Head of Appledore Island. This colonization was tried because of the threatened destruction of the colony on Londoner's Island.

The first records of a colony of these birds at the Shoals come from two of the oldest inhabitants. "Uncle" Oscar Leighton, ninety-one years of age, recalls a colony on Duck Island where thousands of "mackerel gulls" nested yearly. In his boyhood the fishermen used to collect the eggs for food, and the men and youths shot the adults for the feathers. This colony persisted until 1898 when "Captain" Caswell moved to Duck Island. As a result of this disturbance, the colony migrated "down the Maine Coast" and settled on various islands. In 1922 a few pairs started nesting on Londoner's Island. This new colony increased rapidly and during the summer of 1928 approximately one thousand pairs were breeding on the island.

The year after the establishment of the colony, a cottage was erected on the island. The cottage, however, was not occupied to any extent until the summer of 1927. At this time the island was sold and the new owner, not desiring the presence of the birds, set about to drive them from the island. The eggs were destroyed, the young were killed, and the adults kept in a state of constant confusion. During the summer of 1929 large numbers of eggs were broken, and numerous young were killed. A dog was kept roving the island and nosed out and killed many of the fledglings, and a flock of hens destroyed great numbers of eggs.

Although the situation was unfortunate, the owner was evidently well within his rights in destroying the birds on his own property.

In view of the above circumstances it was decided that an attempt at recolonization might be the means of saving the colony.

[1] Contribution No. 6—Zoological Laboratory, University of New Hampshire, Durham, New Hampshire. C. F. Jackson, Director.

Aside from the barest possibility of success, the project afforded an excellent opportunity for observing the habits of the bird as well as its adaptability. It was fully realized that such an experiment would cause a high mortality, but on the other hand, the mortality would be just as high if the young birds were left in the original colony.

Londoner's Island is at the south-western corner of the Isles of Shoals group. It is a rugged mass of rock of about fifteen acres. The majority of nests were on the higher portions which rise about forty feet above the high-tide mark.

The nests were most plentiful during June. They usually contained two or three eggs, occasionally four. The eggs were sometimes laid on the bare rock, but were usually in shallow nests scooped in the soil among the bushes. Some of the nests were built up of rock-weed to a height of two or three inches. It may be noted here that about ten pairs of the rarer Roseate Terns (*Sterna dougalli*) nested in the deeper brush of the northern end. A few of the young of this species were involved in the experiment.

In choosing a location for the experiment the environmental factors of Londoner's Island were carefully considered. North Head on Appledore Island was finally chosen as an ideal place for the experiment. Here an area approximately equal to that of Londoner's Island was available. The vegetation of this location is practically the same as that on Londoner's. The altitude and rocky shore-line are similar. The water is deep, and small fish are plentiful. Just off-shore there is a large rock which rises about twenty feet above the high-tide mark. Here Terns commonly alight. Between this projection and the shore is a large pool which is fairly shallow.

This region is about one and one half miles from the present colony, and is on one of the main tracks of flight to and from the regular fishing grounds of the birds. Normally there are a number of Terns fishing along this shore, and in the deep fjord-like cut at the northern extremity of the area. About a mile to the north-east is a large colony of Herring Gulls (*Larus argentatus*). The proximity of this colony appeared to be the only disadvantage of the proposed new colony of Terns. There was the possibility that the Gulls might kill the young Terns, or that the adults might not

settle so near the Gull colony. However, the other advantages of North Head more than offset this feature.

At the time the experiment was started, it was already late in June. Large numbers of the young were hatched, and a few were well grown. Arrangements were made for caring for about three hundred young. A pen of matched boards was constructed, 12′ by 12′ by 10″ in height. The top was left open to allow the old birds free access to the young.

Eight members of the University of New Hampshire Marine Zoological Laboratory collected the young. Each member of the party took a lane about six feet wide and collected all of the young birds in this area. It is the habit of the young Tern to creep under rocks, bushes, and grass to hide from the rays of the sun. This, added to the difficulties of wading through poison ivy, the swoopings of the distraught parents, and the stable-flies which appear indispensable to a sea-bird colony, made the work laborious. The young birds were put in bushel baskets and immediately transported to Appledore, and placed in the pen. After the young were in the pen five adults flew back and forth over it until dark. They called constantly, and the young set up an answering clamor.

Several cunners (*Tautogolabrus adspersus*) were chopped finely with an ax, and fed to the young birds. Force feeding was necessary in most cases. A number of bushel baskets were left for cover, and brush was distributed around the pen. The birds were then left for the day to allow the old birds, who were apparently very curious about the whole proceeding, to become used to the new situation. At nightfall the very youngest chicks were put in covered baskets.

The following day there were twelve adults present throughout the whole day. The young were fed two meals of chopped fish. Several adults brought fish, and one or two lit on the edge of the pen for a few seconds, but none were seen to feed the chicks. Fresh water was left in flat dishes in various parts of the pen and the chicks drank and bathed freely. From the third day on the fish was ground whole in a meat-grinder. The chicks accepted it much more readily in this form. Several of the medium grown chicks picked up the fish from a tray in which the residue of the food was placed. The heaviest mortality was among the oldest

and the youngest birds. The former were shy and could not be made to eat, while the latter were so numerous that they could not receive enough individual attention. At the end of the third day eighty had died. About forty adults were near the new colony most of the time now.

The mortality rate dropped, and after the first week but few of the young birds died. By the end of this time the adults were feeding an amount equal to possibly one-third of that which was put in the pen in the form of ground fish. Often there were one hundred and fifty adults flying about the vicinity. All of the young ate from the tray, and came running like so many chickens at the sight of food, and a number had started to fly.

Toward the latter part of July all of the remaining young were flying, and it was thought desirable to obtain more. Only seventy-eight were collected on this trip, as only the medium sized ones were taken. The care of these was the same as of the preceding group. Once or twice they were left for a day without food in order to check on the amount of food brought by the adults, but they never seemed particularly hungry the following day. Many of the young flew continually in and out of the pen, but came back whenever food was brought. The adults seemed fewer as the number of the young decreased. The young birds spread all along the shore during the day, and returned to the pen at night.

One interesting feature of the behavior of the adults was the way in which they drove the young up from the tide region at night. After sitting amicably with the young on the rocks they would suddenly rise and noisily swoop at the youngsters, driving them toward the pen. Some of the young were surprisingly tame, and would light near any spot where fish was being ground. They would beg for pieces by calling and fluttering the wings as they did when the adults brought food. The bright-eyed little fellows watched every movement, and open-billed, tried to catch chunks of fish liver tossed to them. One flew half a mile to a place where fish were being cleaned, and was fed upon the scraps. He was easily picked up.

By the end of the first week in August the feeding was discontinued as all of the birds collected were now able to care for themselves. It is estimated that about eighty birds were reared to this

stage of maturity. A visit to the colony the last week in August showed that a number of the young were remaining in the vicinity. A pair of adults accompanied each bird and all were engaged in fishing. Often a youngster coming in from the sea alighted on the familiar rocks.

The results of this experiment were awaited with a great deal of interest. On a trip to the islands soon after the Terns appeared in 1930 many pair were seen in the vicinity of North Head on Appledore Island. It was not possible to again visit the islands until the middle of June when it was definitely established that a sizable colony was nesting on North Head. A careful search about June 18 showed thirty nests with from two to three eggs. This meant that approximately sixty birds, nearly the number reared to maturity, were nesting on North Head. Although some banding was done in the summer of 1928, it was not thought desirable to catch any of the birds until after the nesting season. Hence the colony was left strictly alone. It was, therefore, a great surprise on returning to the colony about two weeks later to find the nests completely abandonded.

Many Terns were in the vicinity and some would occasionally swoop down on the intruder as though protecting their nests or young.

However, there was no evidence of a single young having been hatched and practically all the nests contained from two to three eggs. The eggs were weather beaten, and in many cases were punctured on the under side by small irregular holes. The cause for this could not be determined, nor have we the slightest idea what caused the birds to abandon their nests. It could not have been that they were disturbed for every effort was made to protect the colony from intruders. One theory was that the entire colony was composed of young birds and that the first year these do not produce fertile eggs. This does not seem reasonable, however, but in order to test this possibility no additional young were brought from the parent colony this year.

We are awaiting, with considerable interest, the nesting season of 1931. If none nest on the North Head of Appledore, a new lot of young will be imported from the parent colony and the entire project started over again.

University of New Hampshire,
Durham, N. H.

SOME ANGLES IN THE PROBLEM OF BIRD MIGRATION.

BY JOSEPH GRINNELL

IT has been suggested that when the emotion of wonder or marvel comes over a person, said person tends to lose all rationality—he is, for the time being, of unsound reason. If this be true, then the state of mind in which one marvels or wonders over natural phenomena is not a state of mind in which one can permit himself to indulge and at the same time expect to develop soundly scientific interpretations from the sets of facts he gathers.

There is on our library shelf a large amount of literature concerning the subject of bird migration; and from year to year this mass of print is growing. The majority of the authors represented in this field of literature handle the subject of bird migration in the popularly appealing, romantic way. A common literary device employed in this method is the one inducing in the reader the emotion of wonder—startling queries left unanswered, ideas akin to supernaturalism invoked if not out and out expressed. Examination of books and articles on bird migration, with this point in view, shows that, with very few exceptions, they open and conclude with exclamations of wonderment! "The marvel of nature" is their main selling point. And natural history in general, as a really worthy field of scientific enquiry, I may as well admit has been suffering from the same sort of thing.

A substitute for the emotion here called in question, and one, I think, quite different and altogether consistent with rationality, is what has been well termed scientific curiosity—that calm and unexcited attitude of mind in which a person wants to know, with confident expectation ultimately of finding out. Regarding this subject of bird migration, freely admitting it to be one of manifold complexities, let us begin and carry on our enquiries with rather bold assurance that, sooner or later, we are going to find satisfactory answers to every question, down to such as relates to the very smallest detail. At least, this attitude cannot fail of being the really safe as well as profitable one.

We now have, right at hand in published form, large accumulations of well attested facts concerning the habits and individual behavior of birds. Good observers are increasingly numerous; and methods are improving, for example in the employment of banding, or ringing as the Englishmen say. What we need in improved measure is the exercise of those faculties which will enable us slowly, critically, and explicitly to derive interpretations from these facts. We also need to draw upon the correlated knowledge afforded in general biology, in addition to what we can learn alone from the bird itself.

We learn from general natural history that often when an animal group gains increased ability for locomotion on the part of its individuals, other factors remaining equal, it gains ascendancy in the struggle for persistence over related groups which lag in this respect. The class of birds outstandingly, among all the vertebrate groups, has acquired the ability individually to move from place to place, and the individuals of this class do so chiefly through the air. Indeed, we may say of birds that all of their class attributes have to do with this perfected function of rapid aerial locomotion.

Aerial locomotion requires high-power engines. The prime and unique structural feature of birds which allows them to develop power with economy of weight is their covering of feathers; for this envelope of feathers enables them to maintain a higher bodily temperature than is found in any other animal group. Citing some facts from Bergtold and from Wetmore, in the ordinary run of passeriform birds the body temperature ranges, in different species, where definitely ascertained, from 105 to 112 degrees F., with a mean of 108, a temperature quickly fatal to the human mammal. And a major feature of structure in the thermo-regulatory system of birds which prevents lowering of the temperature below the optimum for them is their equipment of feathers; a feature of structure which helps to prevent the temperature mounting excessively during extreme exertion is the air-sac system. Heat conservation, insulation, means economy of fuel consumption plus maximum production of power. Relatively to the remaining warm-blooded group of animals, the mammals, birds possess much greater rates of action and reaction in all respects.

Let us recall here that certain law of the acceleration of chemical

reactions with increased temperature. In the activities of living muscular and nervous and secretory cells and tissues, just such behavior of reaction is involved. I have been told by a friend in chemistry that an increase in temperature from 98 degrees F. to 108 degrees F. means in the inorganic world roughly doubling the rate of chemical reaction. In organisms, where various chemical activators also operate, there is surely no less increase of rate with rising temperature. In other words, a bird like the Junco, which Wetmore found to have a temperature of 108 degrees F., probably lives at least twice as fast as does a human being. In matters of awareness, quickness of perception, decision (in the instinctive sense), ability to get under way and to change direction, in potential speed of movement, the bird is the superior by a huge margin.

It is one characteristic of birds, then, that ordinary physical barriers such as deter or outrightly stop non-volant, terrestrial animals are easily crossed over. The immediate problem of gaining a livelihood on the part of the individual bird thereby becomes greatly simplified; for the bird can easily extend its search for food—can shift its daily forage beat altogether, seek food where most readily obtainable, even far from the safe roosting place to which it must return each night, in certain cases go across miles of country to get the food with which to supply its young which have been hatched on an island or in an aerie selected for essential safety from enemies. Birds, by reason of their successful solution of the problem of transportation, are able to *commute* in degrees far exceeding our own celebrated accomplishments in this line.

Migration as regards any given species in which this habit is highly developed is a pouring or streaming of a population with more or less *seasonal* regularity from one territory where subsistence of the requisite kind is failing into another territory where subsistence of the same kind is obtaining. Sometimes the pouring or streaming of emigrating populations follows single narrow, well-defined channels, as when paralleling coast lines, river-valleys or mountain chains; often the routes of travel are broad, covering extensive and topographically variable terrain thinly; sometimes they break up into numerous trickles or streamlets, separating and uniting in approximate conformity with the configuration of the land or with resources of subsistence along the way; sometimes

there is merely an irregular drift of individuals across or over the land or the sea from winter to summer habitat or vice versa. And in many species there is no regular, migratory movement, but a tendency to wander, irrespective of season or place—avian vagrancy.

It is significant here for me to point out that the classical cases of migration forming the usual basis of discussion are those of birds which show the habit in extremest degree, as regards length of route traversed, or as to seasonal regularity of accomplishment, or both. Also, the latitudinal position of the usual station of observation, namely, in the north temperate geographic zone, is so located as to give maximum opportunity for perceiving of the phenomenon, because there involving the greatest percentage of far-migratory species, and most individuals of these species; and also, *there*, are located the greatest number of thinking, or "marveling," human observers.

We must constantly keep in mind, as full of meaning for our thesis as I try to develop it, that when we consider all the birds of any one locality and more especially all the birds of the entire territory in so far as we know it from the equator to the north pole we find every conceivable intermediate degree from the extreme of far-distance and great regularity of migration down to the condition of absolute sedentariness of entire population with only a meager evidence even of vagrancy. Indeed, on checking over groups among all the species of the northern hemisphere I feel safe in saying that the majority (and this applies to aggregate of the individuals as well as to species) are either wholly sedentary or are only partly or slightly migratory. Thus, I would say that migration in its more extreme manifestation is *exceptional* rather than the rule among birds.

By my interpretation, then, we are to look upon birds, all of them, as uniquely, inherently and primitively capable of easy locomotion. The only exceptions or near exceptions are where other factors have induced, *secondarily*, a condition of near or absolute flightlessness, as exemplified in certain insular genera and in certain birds of huge size and highly developed foot power. Here in California, even in our most resident species, like the Brown Towhee, we observe exercise of a high degree of locomobility, as attested of late by the observations of bird banders.

The individual Brown Towhee has in reality a wide latitude of movement, it is able quickly to adjust itself to locally varying food supply and shelter, and it thereby improves its chances of surviving the dangers of locally and recurrently shrinking subsistence.

The factors delimiting the geographic ranges of all our birds, the most sedentary as well as, and in like measure, the farthest migratory ones, are as follows: (1) food of the right kind in sufficient amount, (2) appropriate shelter, meaning safety refuges for individuals, and (3) breeding places or nurseries of appropriate kinds. Territory providing all these factors is occupied to its limit. The distributional occurrence of a species at any moment of the day or on any day of the year is controlled by the co-existence, within coverable distance, of all three of these factors, which together may be termed subsistence. If any one factor of them fails in any direction, the individual bird must withdraw from the territory affected or else die. If, on the other hand, from day to day, and from year to year, changing conditions result in the opening up of new habitable territory, that is, if favorable conditions precedently lacking become provided in it, then individuals from each species affected will promptly fill in the new increment to the general range. Because individuals are able to circulate readily, in groups and individually, and by reason of their geometric ratio of reproduction, their populations may spread within a very few generations to almost any limits. Far more quickly than in the case of other vertebrates, I think, birds are able to take advantage of new territory offering. They are superior opportunists.

Bird populations, then, are blessed with an extraordinary fluidity as regards both time and space—by reason not only of wing power but of superior reaction rate. A factor in the group of features which makes for elasticity of distributional behavior in birds, even in the most sedentary of our species, is comprised in the proneness to wander on the part, especially, of birds-of-the-year. By this process, individuals of each species are continually exploring the frontiers of the general range of the species—seeking to find new ground where, even temporarily, according to season, competition against other animals and against other individuals of their own kind, for subsistence, is not so keen. Huge numbers of individuals are continually, from generation to generation, being

fed into this particular trial-and-error mode of progress, which obtains of course in more or less degree with all other animals. Vagrancy, or pioneering, if that term sounds better, is certainly more conspicuous, and probably more effective, in birds because of the possession by the individual bird of superior ability quickly to go out of ordinary bounds.

To repeat: the most sedentary of our local birds are able to cover much ground daily, to commute, as it were, between resting and breeding places, between resting places and forage grounds, between forage grounds and breeding places. Large areas, producing special kinds of food supply, become accessible, even though far from breeding places, and this ability to reach them means the existence of larger and larger numbers of individual birds, than would otherwise be the case, as the system becomes perfected. Here we see a reason for so much of the flying that is going on—birds going to and fro, not at all for the joy of living or because of excess of vigor—but because it is in the long run absolutely necessary in their scheme of living to do so. They are conspicuously "on their way," but with a justifying purpose; not joy-riding, but as a matter of life, versus ever-impending death, of their species. Daily, the birds go to and fro, over many routes, these determined upon in part by conscious choice, for the birds are keen quickly to fall in with any change that brings improved conditions of subsistence locally—better feeding ground, safer resting and roosting place, safer nesting place.

With all birds, then, much movement is involved in the *daily* program. Let me here try to picture the locomotional behavior of a bird which is selected from among those members of our Campus avifauna which show no truly migratory tendencies whatsoever. This is the diminutive Bush-tit (*Psaltriparus minimus*); and I doubt if any individual of this species during its whole life-time gets beyond a mile from where it was hatched. Yet each individual covers a surprising amount of ground in the course of its daily foraging.

During three-fourths of the year, June to February, the Bush-tits associate with one another in flocks of from 15 to 40 individuals. Each of these flocks ranges in a day over a more or less definite area of live oak, chaparral, or, in the upper edge of the town, culti-

vated shrubbery. In February the flocks break up into pairs, for the breeding function, but as soon as the young are out, new companies assemble. Although we call these companies flocks, the birds are never seen to bunch closely together and to mount on the wing high in the air to take any prolonged flight. Rather, do the birds form loose, scattering droves, loitering along widely spread through several oaks or brush-clumps. There will be noted a general onward movement of the group as a whole, but the striking thing is the incessant and independent movement of each component individual. The food of the species consists entirely of animal things, plant-lice, scale-insects, and the like, of to us minute size, gleaned from the surfaces of leaves and stems. To find these objects in sufficient amount to sustain super-active life, especially during the winter season, day-long activity seems necessary: the individual Bush-tit is continually intent upon its near-sighted scrutiny of leaf-surfaces, especially the under sides which some other foliage-foragers largely miss; thus a Bush-tit's movements bring it very often into the inverted position of body characterizing also its relatives, the Tit-mouses, widely known in North America and Europe.

Incidentally, this close and incessant scrutiny, necessary for sucessful food getting of the kind described, may expose the Bush-tits to a serious measure of danger from their hereditary enemies, the Sharp-shinned Hawks (*Accipiter velox*). This danger is minimized by the habit of flocking whereby the individuals keep within hearing of one another so that the entire group profits by the warning given by the first one to apprehend danger. There is an elaborate "language," consisting of constantly uttered location notes, to keep the flock within bounds—to prevent loss from it of individuals out of sight of one another because of intervening foliage—of loud alarm notes, and of a most effective, effacing chant or confusion-chorus, combined with the "freezing" of the birds.

But to return to their locomotion: The flock as a whole moves but slowly, and it moves in an irregularly circuitous course, determined by such factors as food-productiveness of leafage, and fear of open spaces on the part of the birds. As worked out by my one-time student, Robert C. Miller, in his inquiry as to the so-called "mind of the flock," the total distance covered by one com-

pany of Bush-tits in a day may be less than one mile and by reason of doublings and zigzaggings cover all told less than 50 acres. Yet the individuals, each on its own independent course, have traveled a far greater distance.

The other day, with watch in hand, I observed some Bush-tits with this point in view. A given Bush-tit was seen to shift its position in extent more than a hop, so that the use of the wings was involved, eighteen times in one minute—this therefore in addition to the many more movements involving shift of foothold; and I estimated each of such major shifts to average ten inches. Carrying out a computation on the basis of these figures, for an eleven-hour winter day, brings us to a total daily extent of travel for each individual, of very close to two miles, or upwards of a thousand miles per year, if we figure in the greater length of summer days. The so-called sedentary Bush-tit is thus really pretty much of a traveler even though within small radius.

E. M. Nicholson, perhaps the foremost present-day student of bird behavior in England, in his recent book, "How Birds Live," cites an observation of a pair of Long-tailed Tits which required an aggregate of journeyings, in order to collect the materials for their nest, amounting, when the nest was completed, to over six hundred miles of travel. In another case a pair of Blue Titmouses made thirty-five journeys an hour to their nest, and covered sixty miles daily for every one hundred yards that the food supply was distant from the nestling brood. The point, again, in these cases of the Bush-tits and Tit-mouses is that, while these species are sedentary, non-migratory, yet in normal course of daily routine they individually cover in flight great distances.

The energy involved in the so-called "marvelous" examples of migration is, therefore, even in a conspicuous case, say that of the barn swallow, no single terrific test of endurance; to quote Nicholson, "It is the energy of everyday life concentrated in one direct aim," and involving only a period of days, rather than a single day. "It would hardly be exaggerating to say that a great part of migration is performed simply by the travelers keeping to one appointed direction instead of traveling round and round one little area."

I want now to cite some facts and inferences from studies of sub-

species, and of local populations, pertinent to the better understanding of the nature of migration. We observe that in a number of geographically variable groups certain of the subspecies are conspicuously sedentary while others in the same genus and same species are habitually and regularly far migratory. For example, among the subspecies of Song Sparrow (*Melospiza melodia*) here in California, the race *fisherella*, of the Modoc region, is altogether migartory, while the race *pusillula* of the southern San Francisco Bay marshes is altogether resident. Among the Horned Larks (*Otocoris alpestris*) of western North America, *arcticola* of Alaska is far migratory, while *rubea*, of the Sacramento Valley, is perfectly sedentary. It would appear from a consideration of numerous cases of this sort either that the migratory habit is quite as easily lost as other features shown by slightly differentiated subspecies, or, with the same significance, that it is as easily gained as those features which distinguish slightly different subspecies.

We can go farther, and examine the local population within a single subspecies. Take the Brewer Blackbirds (*Euphagus cyanocephalus*) of the Pacific coast race *minusculus:* those individuals which summer and breed in northeastern California and along the high Sierra Nevada move west and south for the winter season, then occupying common ground with those individuals identifiable as of precisely the same race which stay summer and winter in the lowlands of western and southern California. Then, the Western Meadowlarks (*Sturnella neglecta*) of the various parts of the range of that species in western North America show varyingly, in response clearly to varying need, the predilection for migrating; some individuals, those in southern parts of the general range, are quite resident, while those summering at the north and at high altitudes on the Sierra are regularly migratory.

It would appear from this category of facts that the habit of migration is in most kinds of birds a perquisite easily and quickly taken on or put off. The physical equipment for migration is in nearly or quite adequate measure already possessed as a common attribute of birds, one of primordial standing. In the continual play of factors of existence consequent upon the continual changing of general and local environments, birds, by reason again of their endowment of motility, of sensitiveness, of extreme alert-

ness, are able quickly to make adjustments. We may, indeed, say that the easiest thing they can do toward maintaining successful existence is to transfer their behavior from that of a population shifting annually to the condition of continual residence of their populations, subject only to daily and local circulation. And quite as easy is the reverse adaptation.

A conclusion, then, that seems to me warrantable is that there is not the least need of resorting to any theory of ancient establishment of specific habits of migration. It is unnecessary to appeal to conditions in past geologic time to account for the varying extent of migration in the different species at the present time, as has been done by very many writers on this subject. In the one genus *Sterna*, the Terns, which affords the classic example of the Arctic Tern (*S. paradisaea*), some individuals of which are thought to make an annual circuit of 22,000 miles, we also have the Forster Tern (*S. forsteri*), some individuals of which probably make no migration drift at all; but the latter individuals are probably almost if not quite as much on the wing day by day as the individuals of the former species.

In summary: The problem of bird migration is to be dealt with as a subject without any quasi-mystical attributes, one to go at with full confidence that it can be understood eventually in all its details upon the basis of facts discriminatingly gathered and rationally interpreted. This is a complex problem, one of many, many angles. The nature of a few of the phenomena which are dealt with in the present paper, and something as to their interpretation, is indicated in the following statements.

(1) Birds are primordially equipped easily and quickly to cover territory by flight through air; and this all kinds do, save for the very few, mostly insular forms, where very special conditions of existence have led secondarily to flightlessness.

(2) Birds, by reason of their high body temperature, react in all sorts of ways with exceeding speed and accuracy; they are far and away more alertly responsive to evironmental stimuli than we clumsy humans, perhaps two to one; they are observant and heedful beyond the degree shown in any other animal.

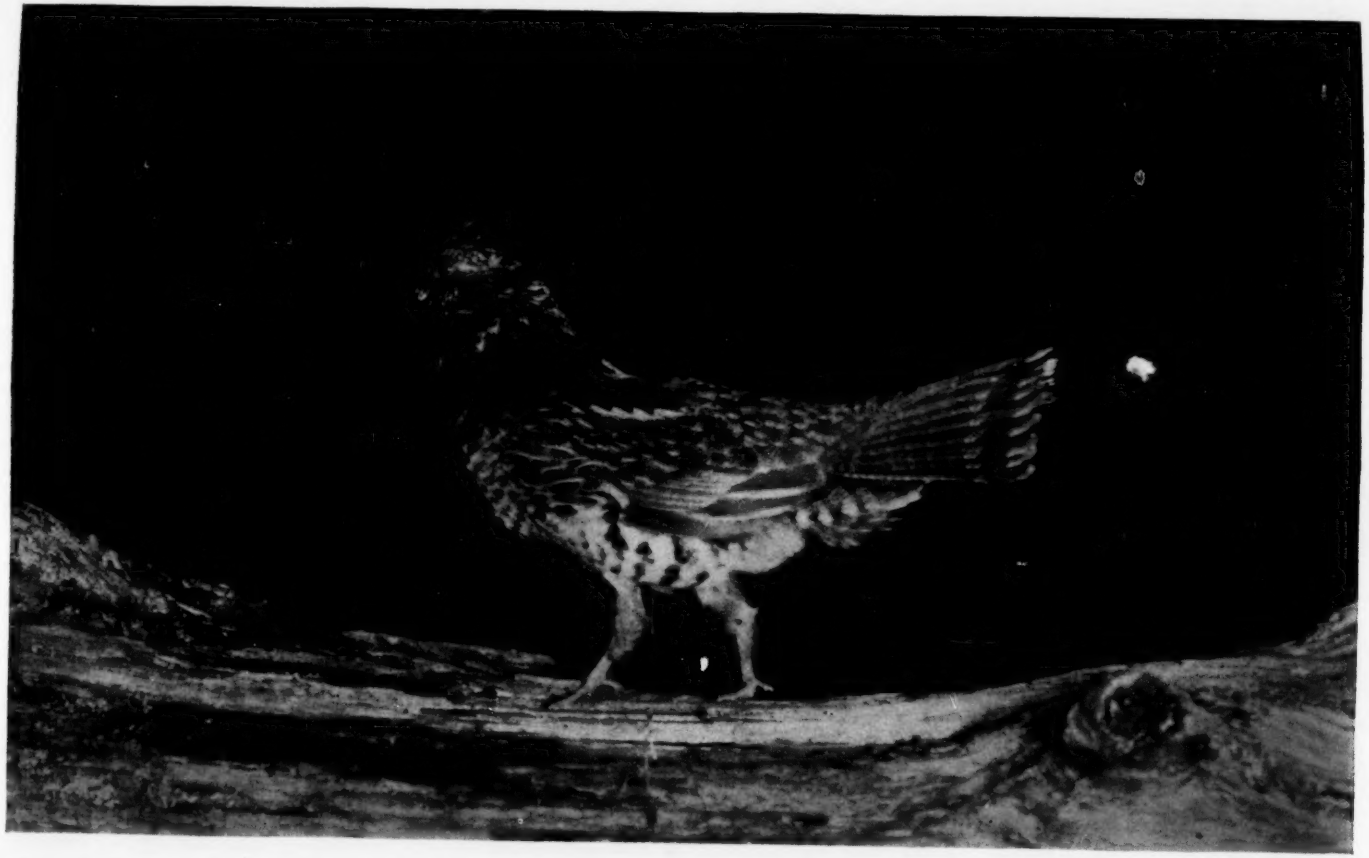
(3) No so-called sixth sense, or sense of direction, *has* to be invoked to account for birds finding their way during long seasonal migratory flights any more than in their courses of daily movement.

(4) The factors that induce, maintain, and modify habits of migration are at the very least as effective now as they ever have been in past time; and they are in all likehood precisely the same as those which control general geographic distribution in all the higher vertebrates.

(5) Adjustments of populations to changing conditions of food, shelter, and safe breeding places are, by birds, readily met; seasonal movements of populations, easily acquired or discarded as habits, give birds a great advantage over any other group of animals yet evolved. It may be suggested that, in consequence, an Age of Birds is in the ascendency.

But, be it said again, the above are offered only as *some* angles in this big problem of bird migration.

Museum of Vertebrate Zoology, University of California,
Berkeley, California.



RUFFED GROUSE (*Bonasa umbellus umbellus*) PHOTOGRAPHED ON ITS DRUMMING LOG, MONROE CO., PA., BY HENRY R. CAREY, MAY 12, 1930, AT 4.39 P.M. PHOTOGRAPH TAKEN WITH CAMERA TRAP SPRUNG BY THE BIRD AFTER BEING SET FOR SEVEN AND A HALF HOURS.

CONCERNING SOME *POLIOPTILAE* OF THE WEST COAST OF MIDDLE AMERICA.[1]

BY A. J. VAN ROSSEM.

IN a recent paper (Amer. Mus. Novit., 414, March 24, 1930, p. 4–7) Mr. Ludlow Griscom has reviewed the Central American forms of *Polioptila*, a revision which necessarily included portions of southern and nearly all of western Mexico. To summarize very briefly that writer's conclusions, he considers that all of the black-headed gnatcatchers in the region under consideration "boil down" to three conspecific forms, as follows:

1. *Polioptila bilineata bilineata* (Bonaparte); this name to include as synonyms *Polioptila superciliaris superciliaris* Lawrence and *Polioptila superciliaris magna* Ridgway.

2. *Polioptila bilineata albiventris* Lawrence.

3. *Polioptila bilineata albiloris* Sclater and Salvin; to include as synonyms *Polioptila bairdi* Ridgway, *Polioptila nigriceps nigriceps* Baird and *Polioptila nigriceps restricta* Brewster.

To the first two premises I have no criticism to offer. The relatively limited material examined personally bears out the contention that *magna* is indistinguishable from *superciliaris*, a conclusion previously reached by Carriker (Birds of Costa Rica, 1910, p. 750). Formerly I had firmly believed in specific distinctness between "*superciliaris*" [*bilineata*] and *bairdi* because in northwestern Costa Rica they meet as species. They were held as separate by Carriker (ibid., p. 751) and in the fair series of both which I have examined from that region there is no suggestion of intergradation apparent. However, I have Mr. Griscom's positive statement (in litt.) that *bilineata* and *albiventris* (which latter is certainly conspecific with *bairdi*) "intergrade directly in southern Yucatan and British Honduras" and on that basis I accept *bilineata* as the specific name for all the Central American forms of this group.

It is with the third case, the combining of *nigriceps*, *restricta* and *bairdi* with *albiloris* that I wish to take issue, not in a controversial sense nor in any way to belittle Griscom's work for which

[1] Contribution from the California Institute of Technology.

I have in general the highest regard. It is simply my firm belief, which is based on ample material and extensive field experience, that the four forms in question are perfectly recognizable and that two of them indeed constitute a separate species.

Before going into each individual case a few prefatory remarks are in order. In dealing with this group, exclusive of *bilineata*, one fact must be borne in mind; white in the loral region is largely a seasonal character, always present in winter and usually absent in full summer plumage. Unbelievable as it may seem the question of seasonal plumage change has been almost totally ignored although the analagous cases of the North American *caerulea* and *melanura* provided conspicuous clues to the unravelling of the Central American tangle. The single exception to the above remarks is that Ridgway (Birds of No. and Mid. Amer., pt. 3, 1904, p. 729) noted a seasonal change in the case of *P. nigriceps*. This failure to take into account the transition from a white lored to a black lored state has been the cause of the incorrect characters ascribed to most of the Central American forms and, paradoxically, is responsibile for the most recent reviser's lumping of four into one.

In the four cases under discussion there are two distinct types which bear every evidence of being separate species. In one (*P. nigriceps nigriceps* and *P. nigriceps restricta*) the head in winter, both in post-juvenal and adult males, is gray, concolor with the back. In the other (*P. bilineata albiloris* and *P. bilineata bairdi*) the head in winter is black with a variable amount of white in the loral region. All four when in full breeding plumage are black headed. Characters which I consider to be reliable are given below. Comparisons are based upon males. Identifying the females of the various races and species is not so easy as in the case of the males for there is no definite seasonal color change. However, in other respects the same characters which the males show are present in the females and there is usually no great difficulty in properly placing them.

Polioptila bilineata albiloris SCLATER & SALVIN.

Subspecific characters.—Compared with *P. bilineata bairdi;* tail relatively and actually longer; loral region in winter plumage usually immaculate

white; a short, white supra-auricular streak frequently present; loral region in summer usually solid black, but sometimes with scattering white feathers. 14 specimens examined.

The range of *albiloris* appears to be wholly on the Atlantic drainage in the interior of Guatemala and southern Mexico.

Polioptila bilineata bairdi RIDGWAY.

Subspecific characters.—Compared with *P. bilineata albiloris;* tail shorter; loral region in winter plumage usually with a black or dusky streak from anterior corner of eye to bill; short, white supra-auricular streak very rarely present; loral region in summer solid black.

In comparing *albiloris* and *bairdi* the tail length is the most reliable character. The others, while characterizing most specimens and sufficiently noticeable in series to be worthy of emphasis, are of doubtful value in the determination of individual specimens.

Remarks.—In the males of *albiloris* and *bairdi* the black cap is assumed with the post-juvenal plumage and thereafter the only changes are seasonal ones, i.e., white lores in winter and black ones in summer. The following notes on plumage changes are based primarily on a carefully collected series of forty-five *bairdi* taken during my two years' field work in El Salvador.

The post-juvenal male and adult male mid-winter head pattern is that of figure 4. There is considerable variation apparent, some having slightly more black in the lores, others decidedly less. Young birds average with less of black than do the adults. Commencing in late January in the earliest individuals and about the first of March in the latest, a very slow pre-nuptial moult is inaugurated which in the most tardy birds is not complete until late April. This moult affects chiefly the head, although many body feathers are also renewed at the same time. At its completion the lores are to all intents solid black (figure 5) and if, as is very rarely the case, a few white feathers appear in the lores it is due to an incomplete moult. Considering the length of time necessary for this pre-nuptial moult it is not surprising that, on the basis of head characters alone, Griscom found "*albiloris*," *bairdi* and "*nigriceps*" in the same locality in western Nicaragua. Indeed it would be very surprising if all three types of head pattern were *not* found there between the months of January and April! The reverse change, that is from black to white lores in mature males, occurs at the post-nuptial moult the time of which, like the spring

moult, varies tremendously in different individuals. Some commence in late July while the other extreme is a male taken September 25, which still retains most of the old summer plumage.

In both *bairdi* and *albiloris*, although much more commonly in the latter, there occurs sporadically a short, white supra-auricular streak extending backwards from the posterior upper corner of the eye. It crops out in both sexes regardless of season and represents most probably a recessive character indicative of the more or less remote *bilineata* origin. Such specimens from the west coast of Central America have sometimes been called "*bilineata*" or "*superciliaris.*" This short streak bears little resemblance to the broad superciliary stripe of *bilineata* and need cause no confusion. Seventy-one specimens examined.

The range of *bairdi* lies wholly on the Pacific slope, a narrow strip extending from northwestern Costa Rica to San Blas, Nayarit. It overlaps that of *nigriceps* in a geographical sense, but possibly not actually for while San Blas is on the seacoast, Tepic, the southernmost station for *nigriceps* is an upland locality. Typical *nigriceps* reaches the coast, however, at Los Labrados in southern Sinaloa.

Polioptila nigriceps nigriceps BAIRD.

Specific characters.—Compared with *P. bilineata albiloris, P. bilineata bairdi* and *P. bilineata albiventris;* bill decidedly smaller; *head concolor with the back in post-juvenal and winter plumage;* general coloration darker and more slaty gray with rump and flanks definitely tinged with brownish or buffy; decidedly different from the paler bluish or ash gray tones of the more southerly species; tail with more black on the basal portions of the lateral rectrices.

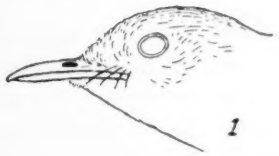
Subspecific characters.—Compared with *Polioptila nigriceps restricta;* black in summer plumage extending backward over nape. Ten specimens examined.

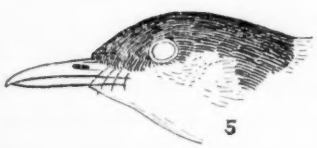
Culiacan, Sinaloa is the northernmost station for *nigriceps* and Tepic, Nayarit the southernmost.

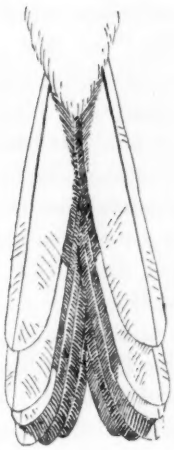
Polioptila nigriceps restricta BREWSTER.

Subspecific characters.—Compared with *P. nigriceps nigriceps;* black of head in summer plumage much less extensive and not extending over nape. Thirty-four specimens examined.

Although known certainly only from Sonora, the northernmost points being Tecoripa and San Javier, there can be little doubt that *restricta* extends a short distance into northern Sinaloa.







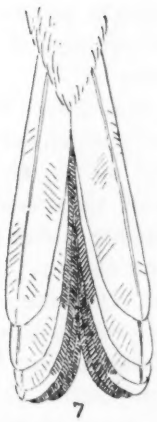


Fig. 1. *Polioptila nigriceps nigriceps. Polioptila nigriceps restricta.* Winter.

Fig. 2. *Polioptila nigriceps restricta.* Summer.

Fig. 3. *Polioptila nigriceps nigriceps.* Summer.

Fig. 4. *Polioptila bilineata bairdi.* Winter.

Fig. 5. *Polioptila bilineata bairdi.* Summer.

Fig. 6. Tail of *Polioptila nigriceps restricta.*

Fig. 7. Tail of *Polioptila bilineata bairdi.*

Remarks.—In the post-juvenal and winter plumages *nigriceps* and *restricta* are not distinguishable from each other by any characters I can find. For that matter both are sometimes not too easy to distinguish from *Polioptila caerulea!* In this latter case the less purely blue (more slaty) coloration, shorter wing and longer, more graduated tail will serve to identify *nigriceps* and *restricta.*

As stated above, the winter plumage of the males, post-juvenal and adult alike, is characterized (figure 1) by the absence of black. The pre-nuptial moult commences, just as in the southern species, about the end of January or early in February and may not be complete until the middle of April. The moult commences on the forehead and progresses slowly backward, the line of demarcation between the new black and the old gray feathers being very sharply defined. The only difference I can find between *nigriceps* and *restricta* is that in *nigriceps* the black of the summer plumage goes clear to the nape (figure 3) while in *restricta* it stops short at the hinder edge of the crown (figure 2). Personally taken specimens of *restricta,* collected in Sonora on April 28 and May 9, had some time before finished the moult. These, together with other April and May specimens from Sonora, demonstrate the validity of this race on precisely the characters which Brewster originally ascribed to it. Brewster's specimens, some of which I have examined, were taken in late February and early March and do not show the full development of the black cap, although some come very close to doing so.

It is always harder to refute an old concept than to initiate a new one and because I have here attempted to do both I have gone into the characters of Middle American *Polioptila* in far greater detail than would otherwise be justified. I regret that it is not possible to deal fully with all of the forms in this region, but with some of them I have had no field experience whatever. This, I insist, is necessary in order properly to determine relationships. For the present paper I have borrowed specimens from the Bureau of Biological Survey, California Academy of Sciences, Museum of Comparative Zoology, and the U. S. National Museum to fill in geographical gaps not represented in the Dickey collection.

Average measurements for males

	Wing	Tail	Culmen from base
7 *P. b. albiloris*	48.5	53.0	14.5
25 *P. b. bairdi*	48.5	48.0	14.8
7 *P. n. nigriceps*	47.0	51.0	13.6[1]
23 *P. n. restricta*	48.5	52.5	13.3

[1] The bills of *nigriceps* and *restricta* are much more slender both in vertical and lateral profile, a feature which measurements do not properly express.

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NATURALISTS, NATURE LOVERS, AND SPORTSMEN.[1]

BY JOHN C. PHILLIPS.

THIS paper is a frank attempt to analyze the differing mental horizons of ornithologists and sportsmen. It may pinch a toe here and there. If it does, then it is not so much my fault as the fault of the subject I am trying to handle, for the subject is extremely complex and touches a wide variety of human interests.

Years ago almost the whole field of conservation, sport and ornithology could be followed in the pages of one or two journals. Now we have a perfect flood of periodicals, all so specialized that the different groups of people interested in wild life have little mutual exchange of thought. We have become detached specialists. This has lead to a sort of mutual distrust which is unfortunate. Each little group reads its own inspired journals and few persons can follow the flood of outdoor news these days and get any clear picture of the general trend of thought, or the actual conditions surrounding different forms of wild life.

The ornithologist may say that sportsmen have made a mess of things. He often distrusts the aims and methods of sportsmen for various reasons. What are these? Well, let us see. The sportsman is in more or less of a dilemma himself. His own interests are very diversified and very often the desires of one group are absolutely at variance with the aims of another group. If the sportsman has any intelligence at all he freely admits this, as you would all realize if you followed his writings.

All this is not so much the fault of the individual as it is due to a very unfortunate attitude of the State towards game in general. Nearly every one of our states has been content to sit still, sign up rosy annual reports from its Fish and Game department and exploit its wild life resources through high pressure salesmanship in the disposal of sporting licenses. They have failed to think, in terms of figures, of the very important relationship between numbers of guns and amount of game available and even if they did what could they do about it?

[1] Read at the Salem meeting of the A.O.U. October 23, 1930.

The truth is that the theory of ownership of game in this country is not adapted to modern conditions at all. Especially is this true of improved or partially improved farm lands. The State claims title to all the wild life, which was a fine thing in colonial times, or indeed up to fifty years ago; but this legal fiction, if I may be so bold as to call it that, is a very inadequate prop now. Practically, what the State does now is to calmly inform the landowner that he shall not derive any benefit from the game on his land, no more benefit than any wandering stranger has a right to. Peculiar is it not?

So it seems to me that the State must be prepared to do far more than it is doing now, and to accomplish this there must be a higher license fee. If not that, then the State must frankly take the landowner into partnership, give him far more responsibility and latitude in the matter of game management, protect him from irresponsible and unwanted shooters, and in the last analysis create some very strong incentive for him to care for and encourage wild life. As a matter of fact the State will have to do both these things.

If we have learned anything through experience it is this: (and let the ornithologist and lover of nature ponder well upon it) that you cannot build up a wild life stock by prohibition alone. That you cannot expect to encourage real protection or to encourage real production when game is more of a liability on a person's land than it is an asset. This is actually a fact in many places today. Would you expect potatoes to flourish on a farm where they were constantly stolen from the field, and when at the same time the market price had dropped to zero? But that is exactly what we are asking our game birds to do today in most of our northern industrialized states.

Now at this point I think we should call attention to the fact that protection of all non-game birds is so intimately bound up with our present State systems for the administration of fish and game that the two cannot be separated. What I mean to say is that if our fish and game system, such as it is, should break down, the whole fabric of wild life protection goes with it. You know what happens in a city when the police go on strike? The same condition would soon creep into our woods and fields the moment

the wardens, the potential protectors, were removed. It is only a short step from fairly good conditions to a situation where wholesale bootlegging of game and large destruction of non-game birds for food is likely to take place.

Now what other sources of misunderstanding are there? Well, perhaps the most important one is this. We can for the sake of argument divide all persons concerned with wild life into two great groups. First, those who are frankly interested in game because it is a means of satisfying a certain definite "urge of the chase" common to mankind for thousands of years. The practical-minded sportsman of the intelligent sort wants to see game perpetuated so that his own sons can enjoy the things he has enjoyed, so that some of the hardier sports will be left in this steam-heated world for those who demand something more satisfying than golf and ping-pong. Some of you may regard this as an unfortunate, irrational state of mind. Maybe it is but I would remind you that it exists and is a potent force to reckon with.

Secondly, on the other side, you have the great mass of people who want a stock of wild life for its own sake, who get from it an adequate aesthetic satisfaction by feeling its mere presence. Of course I am arbitrary in this division of the genus Homo because very many sportsmen are lovers of nature in the best sense, and very many bird lovers tolerate sport because they see so many of their best friends deriving such enormous enjoyment and so much of increased health from engaging in it. They are willing to live and let others live.

But the fact remains that we have those two great groups, with similar desires in the restoration of wild life but with rather widely separated basic reasons underlying their desires.

On the one hand, the matter-of-fact, practical sportsman-conservationist, on the other the idealistic, somewhat theoretical, lover of nature, probably farther advanced up the ladder of evolution, as measured by an increased sensitiveness towards animals. How can a congress consisting of these elements ever meet on common ground without misunderstanding and mutual irritation? That is the sad picture we have to face. Well, I do not know that they ever can unless both sides are willing to give and take, willing to cast aside a good many cherished beliefs and hopes.

The sportsmen must realize more fully that the title to all wild life in this country is legally held by the State and that because of this all people have a stake in its welfare. All people should be ready and willing to aid, at least through taxation, in policing these natural resources, leaving to sportsmen their numerical restoration and artificial production—game restoration programs in other words.

Sportsmen must be made to understand many things. They must look at all wild life in a broader way. It is foolish for their journals to tell them that they can have abundant game if only they will exterminate predatory birds or something of that sort. We know they cannot. The only way to handle this delicate question of Hawks and Owls is to protect all species of predatory birds, with two or three exceptions, except *when they are doing or about to do damage*. Sportsmen should discourage the destruction of Hawks for sport alone, but at the same time leave the farmer or the game breeder absolutely free to protect his own property.

And what of the bird lovers? They must come to accept a good many "home truths." I can only mention a few that seem to me important. First, let them get into the game of conservation as they did in former days, but let them come in with their eyes open, accepting the present system of State conservation as it actually exists. I abhor the word "conservation" since it has become so liable to commercialization and because it implies restriction rather than production. If nature lovers refuse to take into consideration the real status of things, the growing popularity of sport, the difficulties of the State game departments, the part that practical politics is always bound to play, the painful situation of the landowner and the real, not theoretical, situation of our game species, then they will do more harm than good. They must face facts, not theories or dreams.

Bird students must admit the, to them, disagreeable fact that field sports are far more popular today than ever before. That in the long run it is better so, although the situation today may look dark enough. If anything is needed to prove this statement about popularity of sport let the ornithologist study the rapid increase in sporting licenses which has far outstripped any increase in population.

Let us also realize the huge extent of the commercial interests involved today. Many of them are dependent on a stock of wild life. I admit they have been interested up to now in exploiting its destruction. But we can just detect the dawn of a better day, for the far-seeing elements are frankly worried and are appointing their best brains to study the many problems which threaten to put an end to their own very particular line of commercialism.

And nature lovers must realize that man is the greatest and last of the predators, that he has existed on this very imperfect globe because he has dominated nature. The battle still continues, only man is nearly through fighting for his life and limb and is now fighting rodents and insects and diseases to protect his food supply. But he remains a killer for all that, though more and more he becomes an intelligent and controlled killer.

The nature worshipper's millenium in which he pictures an inviolate nature is not yet to be. Man, since he has elected to live in cities needs the allurements of the outdoors more than he ever did before. We shall find some more practical American wild life policy. It is a good sign that we are talking about it today and that some States have advanced far along the road towards providing and regulating recreation with gun and rod. We have many interesting experiments in progress. The so-called Horton Law in Michigan (Acts 249, 1929), the Williamston plan in Michigan and some recent developments in farmer-sportsman relationships in Texas.

Do not, however, expect that we can solve the widely differing problems of our vast continent by any common methods, any uniform American game policy. We are too diverse for that.

Federal control is right, and we are glad to have it, but in the end practical accomplishment in the matter of adequate restoration of water areas, of adequate protection, etc., will rest with the States. The Federal Government can lead and demonstrate but it cannot do all. The present attitude of many States is to "pass the buck" to the Biological Survey in matters affecting migratory birds. This is not a healthy sign.

Be not too impatient with the man who believes in sports. He numbers among his fraternity an enormous proportion of very conservative persons who can be moved but slowly. The pro-

gressive sportsman can go ahead only just so fast as he can show the great mass of the less enterprising that what he is trying to do is eventually for their own good. The game and fish commissioner is tied to the same horse amd he has his political fences to keep in repair at the same time. He is seldom in a position to lead. He has to hedge, cajole, flatter and generally do the best he can.

Take the laws next. Prohibitions that do not prevent are only a step backwards. We cannot expect much more prohibition, I mean more prohibition of sport. We have reached the limit in this direction. A further curtailment of the shooter's activities would result in many cases in demoralization, in a breakdown of all law enforcement. Therefore to bird lovers I say, be as patient as you can; work with the established system in your State, difficult as it may be, as it almost certainly will be. Try to understand the point of view of a State legislator listening for the first time to some conservation bill. Those are the minds you must understand in the final analysis.

Let bird lovers work for those things that have a real bearing on the future of our birds and game. Let them cultivate a sense of relative values which I am sorry to say have often been lacking. A good many of our lady friends are wasting a lot of time, a lot of money, and getting themselves a good deal laughed at because they fail to grasp these points. You can easily get the whole sanctuary idea discredited unless sanctuaries actually do a service in some definite way. It is a waste of badly needed funds to set aside tracts of land where no definite purpose is contemplated or accomplished. The practical politican will begin to ask what you are trying to do, what is the State being let in for, and how much will it cost the taxpayer for future maintenance? The practical local sportsman has got to be shown also that these areas are actually serving a definite end in providing a harbor for a rare species, protecting a breeding colony, or restoring an area ruined by commercial exploitation. If you cannot show something of this sort to the ordinary man on the street, your efforts will finally be discredited.

So let us be a little more careful in the choice of areas. Every state will eventually have to have a plan for its open spaces for recreation, for forests, for reservations of all sorts. The naturalist can help in the making of such a plan.

And there is the appalling threat of oil. We must all pull together on that. Oil is killing countless thousands of our finest water birds, our marine ducks, loons, auks, grebes and gulls. The situation is getting worse and gradually even our inland waters are being polluted from the wash of city gutters, garage overflows and filling stations. We have two distinct problems; the problem of mineral oils dumped on the high seas, an international problem; and we have the pollution of inland waters, which has been nobody's business but which ought to be and will be some time the business of a Federal agency.

I might mention here the obvious necessity of selecting applicants for shooting licenses on the basis of some knowledge of wild life and the laws protecting it. It is not morally right for the state to turn loose upon a long suffering public a herd of "shotgun toters" about whom it knows nothing. And as I said before the farmer must be given more protection from the irresponsible shooter who has no particular place to go and does not know how to behave when he gets there.

Of course one could go on enumerating what the bird student might do, but we cannot go on forever. The main thing is for us to realize the enormous difficulties, the enormous complexity of trying to adjust our wild life resources so as to fit into the modern industrial development of the country. The motor car is not only a potential destroyer through its presence as a time saver, it is an actual destroyer of wild life on all our improved highways.

I doubt if many of you realize the lack of constructive ideas and the total absence of co-operative spirit that one finds among many of our sportsmen. I believe they are the most conservative group we have in this country. Every new idea is regarded with the utmost suspicion. They have to be shown; and it takes time, costly time. If you do not fully understand what I mean in this connection I think you would if you sat through endless hearings, as I have, listening to proposed changes in our game laws.

Paper conservation is easy; real conservation demands the patience of a Job; the optimism of a Roosevelt.

Massachusetts Game Protective Association.

WILD LIFE ADMINISTRATION AND THE FISH AND GAME COMMISSIONER.

BY WILLIAM C. ADAMS.

Director Division of Fisheries and Game, Mass. Department of Conservation.

THE administrative details of business and the intricacies of practical politics are usually regarded with impatience by those engaged in scientific research. This likewise applies to those who desire to contemplate a given situation or view an interesting work of art free from interruptions and common places.

Each of you is interested in studying one or more species of those animals which are given the group designation of wild life. Your field is more particularly the birds. Other groups are primarily interested in the mammals—and so throughout the list. But even among the birds you have your favorite species, and often your particular field within which to make research. Some of you cover a wide range and others are content to concentrate within a narrow limit.

For many generations our people were content to consider the wild life of our country in a detached sort of way. It is true that in all states from early to late the government has asserted ownership in all the wild life on behalf of all the people. But it has only been within recent years that our state governments have come to realize that ownership carried with it responsibilities.

The American Ornithologists' Union has performed a great service throughout its existence in bringing home to the governments, both state and federal, the need of discharging their responsibilities as the owners of this wild life. In many respects the Union was the pioneer. It has made important studies and amassed a wealth of valuable data which has been of great usefulness to the agencies set up by state and federal governments in connection with the discharge of their responsibilities.

For over two hundred years the several states did little more than pass desultory laws from time to time, and let it go at that. It was only during the latter half part of the last century that the

older states started to set up state agencies to care for the wild life stocks within their respective borders.

It has only been within the last few years that the governments, both state and federal, have come to understand that the wild life stock should be administered as a business proposition. The country at large is only beginning to be wild life administration minded.

In all the states (with the exception of Mississippi) there is now a state department, or division, or commission which administers its wild life. There is a great variety of combinations in the set-up of these agencies. Administrative details have in no respect been standardized. Various underlying considerations control the activities of the directing heads. In some states the spoils system in government still flourishes luxuriantly. In such instances, the personnel of the fish and game department changes with each administration. Political expediency of necessity often controls the actions of the administrative head of the fish and game department—as it is generally referred to. In a few cases the tradition obtains that if an administrative head renders good service he is reappointed from time to time irrespective of his politics.

In some states the civil service system does not exist, with the result that the spoils system extends down through the fish and game departments and the directing head is subjected to great political pressure in the appointment of those to carry on the work.

The title "fish and game commission" is a misnomer, but undoubtedly had its origin in the fact that at the beginning of things the protection and propagation of fish and game were the chief purposes in setting up state activities. It has only been in comparatively recent years that these state agencies extended their scope to include the administration of all the wild life within their boundaries.

Today, the financing of game administration by any of the above methods through state appropriations is being based increasingly on the revenues which the fish and game department produces. Years ago hunting and fishing licenses were required in most of the states that are leaders in wild life administration. The underlying theory of the license system is—that whereas all the wild life of a given state belongs to all the people, that group generally des-

ignated as the fishermen, hunters and trappers should pay for the privilege of appropriating to their own use a part of the property owned by all the people.

Today in some states, and Massachusetts is a notable example, the appropriation to administer all the wild life of the state (excepting the marine fisheries) is based almost entirely on the revenues from licenses sold to the fishermen, hunters and trappers.

The inconsistency of this theory lies in the fact that in effect it is asking a limited group which exploits only a limited portion of the wild life of the State to supply the funds to administer *all* the wild life. It is quite safe to say that at least sixty per cent. of the total volume of wild life in any state, includes the song, insectivorous and non-game birds and the quadrupeds which are not classed as game or fur-bearers. It is quite safe to say that the protection of and increase in this sixty per cent is of greater interest and importance to all the rest of our people than to the group known collectively as the sportsmen—who today are supplying the funds to administer it. Wild life administration in any state will never be adequately financed until the appropriating powers clearly perceive this situation and appropriate sums greatly in excess of the revenues provided by this special group.

There are two generally accepted formulas in wild life administration—(1) the enactment of laws to prohibit the pursuit and possession of certain species and to restrict the taking of others; and (2) the artificial propagation of certain species of fish, game birds and game quadrupeds, for restocking purposes.

Organizations like yours are reluctant to enter the field of legislation and are little interested in the problems of propagation. The term "legislation" is used to cover the mechanics from the drafting and filing of proposed laws through all the intricacies of practical politics involved in getting a measure through a Legislature and having it signed by the Governor. The average scientific man or woman instinctively recoils from the sweat and striving and the personal contacts of practical politics. He or she is inclined to believe that if a law appears desirable, the mere calling of it to the attention of a legislative body should be sufficient and the measure should be adopted as a matter of course. There is a hesitancy to attend legislative hearings and testify. There is a reluct-

ance to participate in a vigorous campaign of education of legislators, together with the preparation and submission of data. The public at large as a rule is indifferent. Often the administrative head is compelled to go it more or less alone.

In a properly conducted wild life administrative department, the head should not be expected either to carry the responsibility of enacting desirable legislation, or the obtaining of adequate appropriations. To do these things he is compelled to request legislators and others to supply the necessary votes. The effect is to put him under obligation. To properly administer his affairs he must be free from such obligations in order that he can say NO when the necessity arises.

No administrative head is stronger or more efficient than the volume of public sentiment behind him. It is useless to advocate protective laws if the public has not been educated to accept those laws and obey them. He can be a factor in creating such sentiment, but the responsibility in the final analysis rests with the thinking people of the country who are interested in wild life administration.

There is no group upon whom this responsibility rests more heavily than the members of the American Ornithologists' Union. For example, we know that a system of properly administered wild life sanctuaries, geographically scattered over a given state, is the surest guarantee of maintaining an abundant supply of wild life. These sanctuaries should be of sufficient size that a superintendent and additional help should occupy them throughout the year. Poachers should be excluded, and war on vermin should be kept up 365 days and nights throughout the year. Adequate food supplies for as many species as possible should be provided. The area should be worked over to make it increasingly attractive to the largest possible number of species of desirable wild life. Many more administrative details will occur to all of you.

We also know that in proper game administration the predators must be kept under adequate control. None of us would favor the extinction of any species.

You can individually and collectively advance the cause by advocating, publicly and privately, the establishment of such sanctuaries. You carry great weight in your several communities for

you are recognized as among those who are devoting a great deal of their time and energy to the scientific study of wild life.

The foregoing are only some of the more important high lights that must be recognized by the administrative head of any state agency that administers its wild life. They are supplementary to the remarks of Dr. John C. Phillips in his excellent paper entitled "Naturalists, Nature Lovers and Sportsmen."

He has made it plain that in the broad field of wild life administration there is plenty of room for all of us to work. But an essential part of this team play is that we be mindful of the interests of all other groups. There is no place in the set-up for the confirmed killer. Neither is there a place for the person who would stop all hunting throughout the country. There is a middle ground upon which we can all meet. And if we gather there and labor shoulder to shoulder on a give and take basis there should be no fear for the future welfare of our wild life stock.[1]

[1] As expressing still another side to the problem discussed by Dr. Phillips and Mr. Adams *cf.* Dr. Pearson's announcement in Notes and News of this issue. Also 'Auk,' 1930, p. 210 and 'Auk,' 1926, p. 140 and 1929, p. 190.

ADDITIONS TO THE LIST OF BIRDS KNOWN TO BE PARASITIZED BY THE COWBIRDS.

BY HERBERT FRIEDMANN.[1]

IN my book[2] on the Cowbirds I attempted to give a complete summary of what was then known of the host species of the various Cowbirds. Since then I have discovered a few overlooked records, and have accumulated many hundreds of unpublished cases based on material in several private collections. To the following gentlemen I take this opportunity of extending my hearty thanks for the data they have generously placed at my disposal: M. C. Badger of Santa Paula, California; J. Hooper Bowles of Tacoma, Washington; J. Parker Norris of Philadelphia, Pennsylvania; George Douglas Smooker of Trinidad, British West Indies. The present additions are not to be thought of as giving a touch of finality to the list of molothrine hosts. When the bird life of South America is as well known as that of North America, I have no doubt but that the wide-ranging neotropical *Molothrus bonariensis* will be known to parasitize many hundreds of other small passerine birds, and the list of its victims may eventually reach a total of 1,000 forms.

Molothrus bonariensis (GMELIN). SHINY COWBIRD.

To the 98 species and subspecies of birds previously listed as victims of the various races of the Shiny Cowbird, we may now add 25 others, bringing the total up to 123. The 25 additions are as follows:

Synallaxis spixi Sclater. Spix's Spine-tail.
Arundinicola leucocephala (Linn.). White-headed Marsh-tyrant.
Lichenops perspicillata andina Ridgway. Andean Silver-bill.
Knipolegus cyanirostris (Vieillot). Blue-billed Black Tyrant.
Myiophobus fasciatus fasciatus (Müller). Banded Brown Tyrant.
Heleodytes albicilius (Bonaparte). White-faced Marsh Wren.
Troglodytes musculus bonariae Hellmayr. Uruguay House Wren.
Thryothorus rutilus rutilus Vieillot. Bar-throated Wren.

[1] Published by Permission of the Secretary of the Smithsonian Institution.
[2] The Cowbirds. A Study in the Biology of Social Parasitism. 1929, C. C. Thomas, Springfield, Illinois.

Mimus gilvus gilvus (Vieillot). Graceful Mockingbird.
Thraupis ornata (Sparrman). Archbishop Tanager.
Pyranga flava saira (Spix). Saira Red Tanager.
Ramphocelus brasilius (Linn.). Brazilian Scarlet Tanager.
Cyanocompsa cyanea minor (Cabanis). Venezuelan Blue Grosbeak.
Pitylus fuliginosus (Daudin). Gray Kernel-eater.
Sporophila minuta minuta (Linn.). Pygmy Seed-eater.
Emberizoides herbicola (Vieillot). Azara's Ground-Finch.
Sicalis flaveola flaveola (Linn.). Saffron Finch.
Sicalis flaveola holti Miller. Holt's Saffron Finch.
Coryphospingus pileatus pileatus (Wied). Pileated Finch.
Coryphospingus cucullatus araguira (Vieillot). Argentine Red-crested Finch.
Brachyspiza capensis matutina (Lichtenstein). Brazilian Chingolo.
Embernagra olivascens olivascens d'Orbigny. Olive Ground Finch.
Embernagra platensis paraguayensis Chubb. Paraguayan Ground Finch.
Amblyrhamphus holosericeus (Scopoli). Orange-headed Blackbird.
Agelaius icterocephalus (Linn.). Yellow-headed Marsh-bird.

Besides these a number of birds previously known as victims of one race of the Shiny Cowbird have since been found to be parasitized by other races as well. The total additions to be known hosts of the subspecies of *Molothrus bonariensis* are arranged by races of the parasite below.

M. b. bonariensis (GMELIN) SHINY COWBIRD.

Synallaxis spixi Sclater. Spix's Spinetail.
Lichenops perspicillata andina Ridgway. Andean Silver-bill.
Knipolegus cyanirostris (Vieillot). Blue-billed Black Tyrant.
Troglodytes musculus bonariae Hellmayr. Uruguay House Wren.
Piranga flava saira (Spix). Saira Red Tanager.
Thraupis ornata (Sparrman). Archbishop Tanager.
Ramphocelus brasilius (Linn.). Brazilian Scarlet Tanager.
Emberizoides herbicola (Vieillot). Azara's Ground Finch.
Sicalis flaveola holti Miller. Holt's Saffron Finch.
Coryphospingus pileatus pileatus (Wied). Pileated Finch.
Coryphospingus cucullatus araguira (Vieillot). Argentine Red-crested Finch.
Brachyspiza capensis matutina (Lichtenstein). Brazilian Chingolo.
Pitylus fuliginosus (Daud.). Gray Kernel-eater.
Embernagra olivascens olivascens d'Orbigny. Olive Ground Finch.
Embernagra platensis paraguayensis Chubb. Paraguayan Ground Finch.
Amblyrhamphus holosericeus (Scopoli). Orange-headed Blackbird.

These 16 bring the total of host forms of *M. b. bonariensis* up to 100 species and subspecies.

M. b. minimus DALMAS. SMALL SHINY COWBIRD.

Arundinicola leucocephala (Linn.). White-headed Marsh-tyrant.
Myiophobus fasciatus fasciatus (Müller). Banded Brown Tyrant.
Thryothorus rutilus rutilus Vieillot. Bar-throated Wren.
Mimus gilvus gilvus (Vieillot). Graceful Mockingbird.
Sporophila minuta minuta (Linn.). Pygmy Seed-eater.
Agelaius icterocephalus (Linn.). Yellow-headed Marsh-bird.
Trupialis militaris militaris (Linn.). Marsh Starling.

The known victims of *M. b. minimus* now total 12 forms.

M. b. melanogyna STOLCZMANN. DARK SHINY COWBIRD.

Furnarius rufus rufus (Gmelin). Rufous Ovenbird.
Thraupis sayaca sayaca (Linn.). Blue Tanager.
Brachyspiza capensis matutina (Lichtenstein). Brazilian Chingolo.

These constitute the first and only known hosts of this cowbird.

M. b. cabanisii CASSIN. CABANIS' SHINY COWBIRD.

Heliodytes albicilius (Bonaparte). White-faced Marsh Wren.
Cyanocompsa cyanea minor (Cabanis). Venezuelan Blue Grosbeak.
Sicalis flaveola flaveola (Linn.). Saffron Finch.

Previously no victims of this Colombian race of the shiny cowbird were known.

In the following annotated list not only are all of the above host species taken up in greater detail, but also a number of others, about which a relatively great amount of new information has been compiled, are briefly treated in the light of present knowledge.

1. **Taraba major Kriegi** Laubmann. BOLIVIAN LARGE ANT-THRUSH.—I had previously listed five definite records of this bird under the name *P. m. major* as a molothrine victim in Tucuman, Argentina. Mr. J. Parker Norris writes me that he has 30 clutches of this Ant-thrush of which 19 contain eggs of *M. b. bonariensis*. All these are from Tucuman, all collected by Pablo Girard.

2. **Furnarius rufus rufus** (Gmelin). RUFOUS OVENBIRD.—Schirch (Observaçaes sobre a nidificaçao do algunas aves no Brazil, Boletim do Museu Nacional, iv, No. 4, 1928) found this bird parasitized by *M. b. melanogyna* at Rio de Janeiro. As previously recorded, the ovenbird is a common victim of the typical, Argentine race of the Shiny Cowbird.

3. **Synallaxis spixi** Sclater. SPIX'S SPINETAIL.—One record. Pereyra (El Hornero, iv, 1927, p. 79) found an egg of the Shiny Cowbird (*M. b. bonariensis*) in a nest of this bird in Argentina. It is rather unusual for Cowbirds to enter one of these large domed nests, although they frequently hop around the outside and seem much interested.

4. **Arundinicola leucocephala** (Linn.). WHITE-HEADED MARSH TYRANT.—According to information sent me by Mr. G. D. Smooker this bird is a fairly common host of the small race of the Shiny Cowbird, *M. b. minimus*. He found several parasitized nests.

5. **Taenioptera irupero** (Vieillot). VIUDITA.—In the J. P. Norris collection there are two parasitized sets of this bird, both from Tucuman, Argentina, collected by Pablo Girard. I had previously found but a single record.

6. **Lichenops perspicillata andina** Ridgway. ANDEAN SILVER-BILL.—One record. Päfsler (Journ. f. Ornith., 1922, p. 480) records a nest with a Cowbird's egg (*M. b. bonariensis*) at Coronel, Chile.

7. **Knipolegus cyanirostris** (Vieillot). BLUE-BILLED BLACK TYRANT—Chubb (Ibis, 1918, pp. 574-5), quoting W. Foster's field notes made at Sapucay, Paraguay, writes, " . . . a nest was taken from a banana plantation, where it had been neatly woven into one of the leaves; but even in this unusual place it was not free from the parasitic birds, as two eggs had been laid almost exactly resembling the eggs of the legitimate owner." Although it is not definitely stated that the parasitic birds were Cowbirds, they could not have been anything else, as the only other parasitic bird in Paraguay is the Rice Grackle, which would not make use of a nest of so small a bird, and whose eggs would have certainly stood out by virtue of their much greater size.

8. **Machetornis rixosa rixosa** (Vieillot). SHORT-WINGED TYRANT.—Previously known as a molothrine victim in Argentina, this Flycatcher is now also recorded in the same capacity in Paraguay.

9. **Elaenia albiceps** (Lafr. et Orb.). D'ORBIGNY'S CRESTED FLYCATCHER.—One parasitized set from Tucuman, Argentina, now in the J. P. Norris collection, is the second record for this species, previously recorded in this connection only from Mendoza.

10. **Pitangus sulphuratus bolivianus** (Lafr.). BIENTEVEO.—This large Tyrant Flycatcher was previously recorded as a host of the Shiny Cowbird only in Mendoza. Girard collected no fewer than six parasitized nests in Tucuman, now in the J. P. Norris collection.

11. **Myiophobus fasciatus fasciatus** (Müll.). BANDED BROWN FLYCATCHER.—Mr. Smooker informs me that he once found this bird victimized by *M. b. minimus* in British Guiana. I had previously recorded this bird as a victim of the Argentine race *M. b. bonariensis* on the basis of two records from Tucuman. To this may be added four more Tucuman records, now in the J. P. Norris collection. However, these Argentine records refer to the southern race of the Tyrant, *Myiophobus fasciatus flammiceps* (Temminck).

12. **Tyrannus melancholicus melancholicus** Vieillot. BELLICOSE TYRANT.—Previously known to be victimized by *M. b. bonariensis* in Argentina, it is now recorded in this capacity in Paraguay as well.

13. **Heleodytes albicilius** (Bonaparte). WHITE-FACED MARSH

WREN.—Mr. J. P. Norris has a set of three eggs of this wren with one of Cabanis' Cowbird (*M. b. cabanisii*) collected at Rio Frio, Dept. Magdalena, Colombia, May 26, 1927, by M. A. Carriker, Jr.

14. **Troglodytes musculus clarus** (Berlepsch & Hartert). TRINIDAD WREN.—I had previously listed this bird as a victim of *M. b. minimus* in Trinidad on the basis of Leotaud's account. It may be added that Mr. G. D. Smooker writes me that it is a very common victim in that island. Quelch (Animal Life in British Guiana, 1901, pp. 135–136) found it to be similarly frequently imposed upon in British Guiana.

15. **Troglodytes musculus bonariae** Hellmayr.—The records from near Buenos Aires previously listed as *T. musculus* refer to this race.

16. **Thryothorus rutilus rutilus** Vieillot. BAR-THROATED WREN.—G. D. Smooker writes me that this is a rather uncommon species in Trinidad, but that of four nests found with eggs, three were parasitized. Addled eggs of the Cowbird (*M. b. minimus*) only were found in five other nests. Another nest, possibly a false one, contained two fresh Cowbird's eggs before it was completed.

17. **Mimus gilvus gilvus** (Vieillot). GRACEFUL MOCKINGBIRD.—Smooker found a nest of this bird containing an egg of the Small Shiny Cowbird (*M. b. minimus*) in British Guiana.

18. **Geothlypis aequinoctialis velatus** (Vieillot). BRAZILIAN YELLOW-THROAT.—Snethlage and Schreiner (Verh. vi, Inter. Ornith. Kongr. 1926, publ. in 1929, p. 601) record an egg of *M. b. bonariensis* in a nest of this warbler in Brazil on December 14. (They refer to it as *Trichas canicapilla*.) Previously it was known as a host in Argentina (under the name *G. a. cucullata*).

19. **Thraupis ornata** (Sparrman). ARCHBISHOP TANAGER.—Snethlage and Schreiner (*loc. cit., p.* 601) found a parasitized nest on November 25, 1881, in Brazil. (They call this bird *Tachyphonus archiepiscopus* in their paper.)

20. **Piranga flava saira** (Spix). SAIRA RED TANAGER.—Skinner (Oologists' Record, iv, no. 1, 1924, p. 20) records this Tanager as a molothrine victim in Minas Geraes, Brazil.

21. **Ramphocelus brasilius** (Linn.). BRAZILIAN SCARLET TANAGER.—Snethlage and Schreiner (*loc. cit.*, p. 601) record this bird as a host of *M. b. bonariensis* in Brazil.

22. **Thraupis sayaca sayaca** (Linn.). BLUE TANAGER.—The Blue Tanager was previously known as a victim of the typical race of the Shiny Cowbird. Harrison (Oologists' Record, viii, no. 1, 1928) records a nest with two eggs of the tanager and one of the Cowbird at Rio de Janeiro. By locality, this record must refer to *M. b. melanogyna*.

23. **Cyanocompsa cyanea minor** (Cabanis). VENEZUELAN BLUE GROSBEAK.—One record—a set in the collection J. P. Norris, collected by M. A. Carriker, Jr., at Daldas, Colombia, June 9, 1918. It contains two eggs of the Grosbeak and one of Cabanis' Cowbird (*M. b. cabanisii*).

24. **Pitylus fuliginosus** (Daudin). GRAY KERNEL-EATER.—One record. Skinner (Oologists' Record, iv, no. 1, 1924, p. 20) lists this bird as a victim of *M. b. bonariensis* in Minas Geraes, Brazil.

25. **Sporophila caerulescens** (Bonn. et Vieill.). SCREAMING FINCH.—This little bird was previously known as a molothrine victim in Argentina. Devincenzi (Annales del Museo de Hist. Nat. de Montevideo, Serie ii, Tomo ii, Entrega i, pp. 95—96) has found it to be imposed upon in Uruguay as well.

26. **Sporophila minuta minuta** (Linn.). PYGMY SEED-EATER.—Smooker writes that he once found a nest of this finch with an egg of the Small Shiny Cowbird (*M. b. minimus*).

27. **Emberizoides herbicola** (Vieillot). AZARA'S GROUND FINCH.—Chubb (Ibis, 1918, pp. 641–2), quoting W. Foster's Paraguayan field notes, writes ". . . . nest placed in thick clumps of matted grass, but is frequently discovered by parasitic birds, as most nests contain one or more of their eggs . . . . ."

28. **Sicalis flavoela holti** Miller. HOLT'S SAFFRON FINCH.—Snethlage and Schreiner (*loc. cit.*, p. 601) list this Finch as a victim of the Cowbird (*M. b. bonariensis*) in Brazil.

29. **Sicalis flaveola flaveola** (Linn.). SAFFRON FINCH.—A set of two eggs of the Finch and one of Cabanis' Cowbird (*M. b. cabanisii*) from Mamatoco, Colombia, March 31, 1924, now in the J. P. Norris collection, is the only record of this bird as a victim of that race of the Shiny Cowbird.

30. **Pseudochloris aureiventris** (Phil. et Landb.). YELLOW-BELLIED GROUND FINCH.—I had previously known of this bird as a molothrine host only on the basis of Reed's Mendoza record. It may therefore be added that Mr. J. P. Norris has two parasitized clutches from Tucuman.

31. **Coryphospingus pileatus** (Wied.). PILEATED FINCH.—Skinner (Oologists' Record, viii, 1928, p. 64) records several sets of eggs of this Finch from near Arcos, Minas Geraes, Brazil; every set being parasitized. "In two cases one egg of the *Coryphospingus* has three Cowbirds' eggs with it."

32. **Coryphospingus cucullatus araguira** (Vieillot). ARGENTINE RED-CRESTED FINCH.—Two records—both collected in Tucuman by Pablo Girard and now in the J. Parker Norris collection.

33. **Brachyspiza capensis matutina.** (Lichtenstein). BRAZILIAN CHINGOLO.—Snethlage and Schreiner (*loc. cit.* p. 601) and Schirch (Boletim do Museu Nacional Brasil, iv, no. 4, 1928) record this race of the ubiquitous chingolo as a victim of the Shiny Cowbird (*M. b. bonariensis*) in Minas Geraes, Brazil.

Harrison (Oologists' Record, viii, no. 1, 1928) found that at Rio de Janeiro it was imposed upon by the local race of the cowbird (*M. b. melanogyna*).

34. **Poospiza melanoleuca melanoleuca** (Orb. et Lafr.). WHITE-

BREASTED WARBLING FINCH.—In addition to the two records mentioned in my book (p. 115) may be added thirteen others from Argentina in the J. P. Norris collection.

35. **Embernagra olivascens olivascens** d'Orbigny. OLIVE GROUND FINCH.—One record,—a set containing one egg of the finch and two of the Cowbird (*M. b. bonariensis*) taken by Pablo Girard at Manchala, Tucuman, Dec. 5, 1921, now in the J. P. Norris collection.

36. **Embernagra platensis paraguayensis** Chubb. PARAGUAYAN GROUND FINCH.—W. Foster is quoted by Chubb (Ibis, 1918, p. 641) to the effect that " . . . . the nest is built in a tuft of grass but even there the parasitic birds find it out . . ." Foster's observations were made near Sapucay, Paraguay.

The status of *paraguayensis* as a valid race is open to question.

37. **Amblyrhamphus holosericeus** (Scopoli) ORANGE-HEADED BLACKBIRD.—One record a—set of one egg of this bird and one of the Shiny Cowbird (*M. b. bonariensis*) taken near Buenos Aires, Dec. 8, 1909, now in the collection of J. Parker Norris.

38. **Agelaius icterocephalus** (Linn.). YELLOW-HEADED MARSH-BIRD.—G. D. Smooker writes me that this Blackbird is frequently victimized by the Small Shiny Cowbird (*M. b. minimus*).

39. **Agelaius thilius** (Mol.). YELLOW-SHOULDERED BLACKBIRD.—Päfsler (Journ. f. Ornith., 1922, p. 480) records this bird as a molothrine victim at Coronel, Chile. It had been previously reported as such in Argentina.

40. **Agelaius ruficapillus** Vieillot. RED-HEADED MARSH-BIRD.—In addition to the 16 records given in my book (p. 120) may be added the following statement. In the J. P. Norris collection there are 46 sets of eggs of this bird, all from Argentina, and no fewer than 34 of these contain eggs of the Cowbird (*M. b. bonariensis*) as well.

41. **Trupialis militaris militaris** (Linn.). MARSH STARLING.—G. D. Smooker found this bird to be commonly parasitized by the Small Shiny Cowbird (*M. b. minimus*) in British Guiana and Trinidad. Previously it was known as a host of the typical race (*M. b. bonariensis*) in Argentina.

Hypothetical (but probably accurate).

Dendroica ruficapilla capitalis (Lawrence). BARBADOS YELLOW WARBLER.

Wood (Auk, 1923, p. 128–129) quotes H. P. Bascom of Bridgetown, Barbados, to the effect that, " . . . several people . . . have seen the Yellowbird (*Dendroica capitalis* feeding the young of these birds." (*Molothrus b. minimus.*)

Molothrus ater (BODD.). NORTH AMERICAN COWBIRD.

The following are additions to the list of known victims of the North American Cowbird (all races). They bring the total of

host species and subspecies up to 209, comprising an increase of 14 over the list given in my book.

Bartramia longicauda (Bechstein). Upland Plover.
Myiarchus crinitus (Linnaeus). Crested Flycatcher.
Sayornis sayus sayus (Bonaparte). Say's Phoebe.
Agelaius phoeniceus sonoriensis Ridgway. Sonora Red-wing.
Astragalinus psaltria hesperophilus (Oberholser). Green-backed Goldfinch.
Spinus pinus pinus (Wilson). Pine Siskin.
Richmondena cardinalis superba (Ridgway). Arizona Cardinal.
Passerina versicolor versicolor (Bonaparte). Varied Bunting.
Lanivireo solitarius plumbeus (Coues). Plumbeous Vireo.
Dendroica aestive morcomi Coale. Western Yellow Warbler.
Dendroica graciae Baird. Grace's Warbler.
Geothlypis trichas sinuosa Grinnell. Salt Marsh Yellowthroat.
Chamaea fasciata henshawi Ridgway. Pallid Wren-tit.
Polioptila californica Brewster. Black-tailed Gnatcatcher.

In addition to these, a number of forms, previously listed as victims of one race of the Cowbird, have since been found to be parasitized by another race as well. Therefore, if we list the victims according to the subspecies of Cowbird, we get the following additions (including the 14 mentioned above).

a. **Molothrus ater ater** (BODD.). EASTERN COWBIRD.

Bartramia longicauda (Bechstein). Upland Plover.
Myiarchus crinitus (Linnaeus). Crested Flycatcher.
Sayornis sayus sayus (Bonaparte). Say's Phoebe.
Agelaius phoeniceus fortis Ridgway. Thick-billed Red-wing.
Spinus pinus pinus (Wilson). Pine Siskin.
Ammodramus savanarum bimaculatus Swain. Western Grasshopper Sparrow.
Chondestes grammacus strigatus Swainson. Western Lark Sparrow.
Spizella passerina arizonae Coues. Western Chipping Sparrow.
Spizella breweri Cassin. Brewer's Sparrow.
Peucaea cassinii (Woodhouse). Cassin's Sparrow.
Richmondena cardinalis canicauda (Chapman). Gray-tailed Cardinal.
Lanivireo solitarius plumbeus (Coues). Plumbeous Vireo.
Dendroica aestiva morcomi Coale. Western Yellow Warbler.

This brings the list of hosts of the eastern cowbird from 114 up to 127 forms.

b. **Molothrus ater artemisiae** GRINNELL. SAGEBRUSH COWBIRD.

Empidonax traillii brewsteri Oberholser. Traill's Flycatcher.
Dolichonyx oryzivorus (Linn.). Bobolink.
Chondestes grammacus grammacus (Say). Lark Sparrow.

The hosts of the Sagebrush Cowbird now total 55 forms.

c. **Molothrus ater obscurus** (GMELIN). DWARF COWBIRD.

Agelaius phoeniceus sonoriensis Ridgway. Sonora Red-wing.
Astragalinus psaltria hesperophilus (Oberholser). Green-backed Goldfinch.
Richmondena cardinalis superba (Ridgway). Arizona Cardinal.
Passerina versicolor versicolor (Bonaparte). Varied Bunting.
Vireosylva gilva swainsonii (Baird). Western Warbling Vireo.
Dendroica graciae Baird. Grace's Warbler.
Geothlypis trichas sinuosa Grinnell. Salt Marsh Yellowthroat.
Chamaea fasciata henshawi Ridgway. Pallid Wren-tit.
Polioptila californica Brewster. Black-tailed Gnatcatcher.

The Dwarf Cowbird's known victims accordingly reach the total of 74 forms (an increase of 9 over the list given in my book).

In the following annotated list I have included only forms the status of which (with respect to the Cowbirds) has been altered by recent discoveries. The majority of victims are not affected by the new data and are not discussed below.

1. **Bartramia longicauda** (Bechstein). UPLAND PLOVER.—An accidental victim. One record. Mr. J. Hooper Bowles, writes me that he has a set of four eggs of this bird with a cowbird's egg. It was collected in Minnesota. The Cowbird's egg was almost buried in the bottom of the nest.

2. **Myiarchus crinitus** (Linn.). CRESTED FLYCATCHER.—One record; a nest found but not collected, by Mr. J. Hooper Bowles, about 30 years ago in Massachusetts.

3. **Sayornis sayus sayus** (Bonaparte). SAY'S PHOEBE.—Two records, both in the collection of J. Parker Norris. Both were collected in Decatur County, Kansas, by Guy C. Love. One contains four eggs of the Say's Phoebe and one of the Cowbird; the other, three of the victim and two of the parasite. The former set was found on June 19, 1915; the latter, on May 30, 1915.

4. **Myiochanes richardsonii richardsonii** (Swainson). WESTERN WOOD PEWEE.—In addition to the few data previously recorded, there may be added a record from California (set preserved in the U. S. National Museum).

5. **Empidonax traillii brewsteri** Oberholser. TRAILL'S FLYCATCHER.—Previously known to me as a victim of *M. a. ater* and *M. a. obscurus.* Mr. J. Parker Norris informs me that he has a set of four eggs of this Flycatcher plus one of the Sage-brush Cowbird, taken at Salt Lake, Utah, on June 29, 1906.

6. **Dolichonyx oryzivorus** (Linn.). BOBOLINK.—The record from Judith Basin, Montana, recorded by me as referring to *M. a. ater* is really referable to *M. a. artemisiae.*

7. **Agelaius phoeniceus fortis** Ridgway. THICK-BILLED RED-WING.—On June 16, 1914, Guy C. Love collected a set of four eggs of this Redwing with one of the Eastern Cowbird in Decatur County, Kansas. This set is now in the collection of J. Parker Norris and is the only instance known to me of this bird as a host of *M. a. ater.*

8. **Agelaius phoeniceus sonoriensis** Ridgway. SONORA REDWING.—Mr. J. Hooper Bowles informs me that he has a parasitized clutch of this Red-wing in his collection. The Cowbird in question is the dwarf race *obscurus.*

9. **Quiscalus quiscula aeneus** Ridgway. BRONZED GRACKLE.—Strecker (The Ornithology of McLennon County, Texas, Baylor Univ. Mus., Spec. Bull. no. 1, 1927, p. 47) found the Bronzed Grackle parasitized by *M. a. ater* in McLennon Co., Texas. This is the fourth known record, the other three being one from North Dakota and two from Illinois.

10. **Astragalinus psaltria hesperophilus** (Oberholser). GREEN-BACKED GOLDFINCH.—Two records—1. A set in the collection of J. Hooper Bowles, collected by M. C. Badger at Santa Paula, California, June 12, 1918. The set contains four eggs of the Finch and one of the Dwarf Cowbird. In response to an inquiry of mine, Mr. Badger wrote me that this Goldfinch is an occasional molothrine victim but not nearly so commonly affected as the Willow Goldfinch, *Astragalinus tristis salicamans.* A second record, from Azusa, California, is reported by Woods (Condor, 1930, p. 126).

11. **Spinus pinus pinus** (Wilson) PINE SISKIN.—Dales and Bennett (Wilson Bull., 1929, pp. 74–77) record a nest of the Pine Siskin in Iowa, with three eggs of the Siskin and one of the Cowbird. The young Cowbird hatched out and was the sole survivor of the brood.

Swenk (*ibid.*, pp. 79, 82) records two parasitized nests in Nebraska. One, at Child's Point, south of Omaha, May 13, with three eggs of the Siskin and one of the Cowbird; another at Lincoln, May 16, with one young Siskin in it and a young Cowbird on the ground under the nest. "Both old Siskins were about and were observed to feed both the Siskin in the nest and the Cowbird on the ground." The last record is not too certain as birds often feed the young of other birds when caring for their own.

12. **Passerculus sandwichensis savanna** (Wilson). SAVANNAH SPARROW.—Three more records of this rarely imposed upon bird have come to my attention,—a set now in the collection of Mr. J. Hooper Bowles,

a second set found in Ontario, and one in the J. Parker Norris collection. The last was taken at Grand Menan, New Brunswick, July 2, 1883, and is one of the northernmost records for the Cowbird in the east. This nest contained four eggs of the Sparrow and one of the Cowbird.

13. **Ammodramus savannarum bimaculatus** Swainson. WESTERN GRASSHOPPER SPARROW.—Strecker (Baylor Univ. Mus. Spec. Bull. No. 1, 1927, p. 47) records this bird as a victim of the Eastern Cowbird in McLennon County, Texas. It is the second record for *M. a. ater*. In my book (p. 219) I mentioned Bruner's Nebraska record, but forgot to include this Sparrow in the list of victims of the Eastern Cowbird.

14. **Passerherbulus henslowii sussurans** Brewster. HENSLOW'S SPARROW.—Two additional records have come to my notice, making three in all. E. J. Court collected a nest with three eggs of the Sparrow and one of the Cowbird in Prince George County, Maryland, on May 28, 1917. This set is now in the J. P. Norris collection. Mr. J. Hooper Bowles writes me that he has a parasitized set in his collection as well.

15. **Chondestes grammacus grammacus** (Say) LARK SPARROW.—H. D. Johnson collected a nest with three eggs of the Lark Sparrow and one of the Cowbird in the Black Hills, North Dakota, on May 20, 1904. This set is now in the collection of J. P. Norris, and is of interest in that the Cowbird in question is the race of the great basin, *M. a. artemisiae*. This is the only record I know of for the Sagebrush Cowbird.

16. **Chondestes grammacus strigatus** Swainson. WESTERN LARK SPARROW.—Strecker (Baylor Univ. Mus., spec. Bull. no. 1, 1927, p. 47) found this race of the Lark Sparrow victimized by the Eastern Cowbird in McLennon County, Texas. This is the only record for *M. a. ater*.

17. **Spizella passerina arizonae** Coues. WESTERN CHIPPING SPARROW.—Inasmuch as Mrs. Bailey has found that the breeding Cowbird of northern New Mexico is typical *ater* and not *artemisiae*, Jensen's record (Auk, 1923, p. 461) of the Western Chipping Sparrow as a molothrine victim must be referred to *M. a. ater*.

18. **Spizella breweri** Cassin. BREWER'S SPARROW.—In my book (p. 223) I recorded Jensen's note ('The Auk,' 1923, p. 461) on a victimized nest of this bird in northern Santa Fe county, New Mexico, as referring to the Sagebrush Cowbird. However, this is incorrect, as the breeding Cowbird of northern New Mexico is the typical race, *M. a. ater*. Brewer's Sparrow is known as a victim of *M. a. artemisiae* in Wyoming.

19. **Peucaea cassinii** (Woodhouse). CASSIN'S SPARROW.—Mr. J. Hooper Bowles writes me that he has a set of eggs of the Cassin's Sparrow with three eggs of the Sparrow and one of the Dwarf Cowbird, taken at San Antonio, Texas, June 12, 1927.

Strecker (Baylor Univ. Mus. spec. Bull. no. 1, 1927, p. 47) records this Sparrow as a victim of the Eastern Cowbird in McLennon County, Texas.

20. **Melospiza lincolni lincolni** (Audubon). LINCOLN'S SPARROW.—Previously known to be victimized only on the basis of a single Alberta

record sent me by Mr. S. S. S. Stansell, the status of Lincoln's Sparrow as a molothrine host assumes more definite form with a second record kindly supplied me by Mr. J. Hooper Bowles who has in his collection a parasitized set from Kalevala, Manitoba, June 6, 1920. (Four eggs of Sparrow plus one of the Sage-brush Cowbird.)

21. **Passerella iliaca schistacea** Baird. SLATE-COLORED FOX SPARROW.—Previously I knew of one record from Utah and others from Montana. It may therefore be worth noting that several parasitized nests have been found near Spokane, Washington, according to information sent me by Mr. J. Hooper Bowles.

22. **Pipilo maculatus arctĭcus** (Swainson). ARCTIC TOWHEE.—In addition to the two cases cited in my book (p. 228) a third one has since come to my notice. Mr. J. Parker Norris informs me that he has a set of three eggs of this Towhee with one of a Sagebrush Cowbird, taken in Platte County, Wyoming, June 21, 1891, by James A. Nelson.

23. **Pipilo maculatus megalonyx** (Baird). SAN DIEGO TOWHEE.—Previously known from one record (Hanna, Condor, 1928, p. 161). Mr. J. Hooper Bowles has a set of four eggs of the Towhee plus one of the Dwarf Cowbird from San Bernardino, California, July 10, 1921.

24. **Pipilo aberti** Baird. ABERT'S TOWHEE.—Two more records, making four in all, have come to my attention. Both are in the J. Hooper Bowles collection. One, containing two eggs of the Towhee and two of the Dwarf Cowbird, was collected at Mesa, Arizona, May 14, 1919; the other, with three eggs of each, was taken in the same place on June 19, 1919.

25. **Richmondena cardinalis canicauda** (Chapman). GRAY-TAILED CARDINAL.—Previously recorded as a victim of the Dwarf Cowbird, this race of the Cardinal has been found to be parasitized by the typical race (*M. a. ater*) as well, in McLennon County, Texas, by Strecker (Baylor Univ. Mus. spec. Bull. no. 1, 1917, p. 47).

26. **Richmondena cardinalis superba** Ridgway. ARIZONA CARDINAL.—One record, a set in the J. Hooper Bowles collection.

27. **Guiraca caerulea lazula** (Lesson). WESTERN BLUE GROSBEAK.—Previously I knew of one record from southern California (Hanna, Condor, 1928, p. 161). Mr. J. Hooper Bowles informs me that he has a parasitized set in his collection, and Mr. M. C. Badger writes me that at Santa Paula, California, he has found two nests of this bird with eggs of the Dwarf Cowbird.

28. **Passerina versicolor versicolor** (Bonaparte). VARIED BUNTING.—One record, now in the J. Hooper Bowles collection.

29. **Petrochelidon albifrons albifrons** (Rafinesque) CLIFF SWALLOW.—Previously recorded as a molothrine victim only a single time. Mr. J. Hooper Bowles informs me that he has a parasitized set of four eggs of the Swallow and one of the Cowbird from La Anna, Pennsylvania, June 30, 1914, and that three nests of this Swallow at that place contained Cowbirds' eggs.

30. **Hirundo rustica erythrogaster** Boddaert. BARN SWALLOW.—A second record, a clutch of four eggs of the Swallow and one of the Cowbird, taken at La Anna, Pennsylvania, June 30, 1914, is in the J. Hooper Bowles collection.

31. **Phainopepla nitens** (Swainson). PHAINOPEPLA.—Rowley (Condor, 1930, pp. 130–131) found a nest of this bird containing a young Dwarf Cowbird as well as a young Phainopepla. This constitutes the second record for this bird as a molothrine host.

32. **Vireosylva gilva swainsonii** (Baird). WESTERN WARBLING VIREO.—Sherwood (Oologist, 1929, p. 8) lists this Vireo as a victim of the Dwarf Cowbird in California. Previously it was known only as a victim of Eastern Cowbird.

33. **Lanivireo solitarius plumbeus** (Coues). PLUMBEOUS VIREO.—Stokley Ligon found this Vireo parasitized by the Eastern Cowbird in New Mexico, according to Mrs. Bailey (Birds N. Mex., p. 661).

34. **Vireo huttoni huttoni** Cassin. HUTTON'S VIREO.—Previously known from one record (Hanna, Condor, 1928, p. 161) from California. M. C. Badger writes me that he has once found this bird to be parasitized by the Dwarf Cowbird at Santa Paula, California.

Grinnell and Wythe (Pacific Coast Avifauna, no. 18, 1927, p. 104) also record this Vireo as a molothrine victim in California, possibly on the basis of the above records, possibly of others.

35. **Vermivora ruficapilla ruficapilla** (Wilson). NASHVILLE WARBLER.—Mr. J. Parker Norris has in his collection a parasitized set of this Warbler from Farmington, Massachusetts, June 8, 1888. This is the fifth record known to me.

36. **Compsothlypis americana americana** (Linn.). PARULA WARBLER.—Mr. J. Parker Norris informs me that he has a set of three eggs of this Warbler with three of the Cowbird, taken in Northampton County, Virginia, May 27, 1890, by G. B. Benners. This is the only definite record I know of this Warbler as a molothrine victim. I included it in my previous list on the basis of a list compiled by Dr. Oberholser.

37. **Dendroica aestiva morcomi** Coale. WESTERN YELLOW WARBLER.—According to Mrs. Bailey (Birds N. Mex., p. 614) this race of the Yellow Warbler is often parasitized by the Eastern Cowbird.

38. **Dendroica cerulea** (Wilson). CERULEAN WARBLER.—Mr. J. Parker Norris has three parasitized sets of eggs of this bird, all from Ontario. This makes seven records in all, as far as I know.

39. **Dendroica graciae** Baird. GRACE'S WARBLER.—One record—a set of three eggs of the Warbler and one of the Dwarf Cowbird, collected by O. W. Howard in the Chiracahua Mountains, Cochise County, Arizona, on June 23, 1900, and now in the J. P. Norris collection.

40. **Oporornis philadelphia** (Wilson). MOURNING WARBLER.—Mr. J. Hooper Bowles informs me that he has a set of this species with a Cowbird's egg. This is the third definite record I know of.

41. **Geothlypis trichas sinuosa** Grinnell. SALT MARSH YELLOW-THROAT.—Grinnell and Wythe (Pacific Coast Avif. no. 18, 1927, p. 104) list this bird as a victim of the Dwarf Cowbird in California.

42. **Chamaea fasciata henshawi** Ridgway. PALLID WREN-TIT.—Two records: a set containing one egg of the victim and one of the Dwarf Cowbird, collected by M. C. Badger at Santa Paula, California, on June 13, 1917, is now in the collection of Mr. J. Hooper Bowles. Mr. Badger writes me that he has found this bird parasitized but a single time. Rowley (Condor, 1930, p. 131) records another instance of the Cowbird using a nest of this bird.

43. **Polioptila californica** Brewster. BLACK-TAILED GNATCATCHER.—One record. Woods (Condor, 1930, p. 126) observed an almost full-grown Dwarf Cowbird following, and being fed by a pair of Black-tailed Gnatcatchers at Azusa, California, in June 1928. He writes that this Gnatcatcher, " . . . is one of the very smallest birds known to be successfully parasitized by the Cowbird." While the record is very probably a perfectly good one, it should be remembered that birds not infrequently feed young of other birds when they have nestlings of their own and therefore it is possible that the young Cowbird may have been raised by birds other than the Gnatcatchers. This, however, is not a very serious possibility.

Tangavius aeneus (WAGLER). RED-EYED COWBIRD.

The list of victims of this cowbird is now known to include 22 forms, an increase of 5 over my previous list. The five additions are as follows:

Chaemepelia passerina pallescens (Baird). Mexican Ground Dove.
Agelaius phoeniceus richmondi Nelson. Rio Grande Red-wing.
Icterus pustulatus (Wagler). Scarlet-headed Oriole.
Pipilo rutilus (Lichtenstein). Sclater's Towhee.
Pheugopedius felix pallidus (Nelson). Durango Wren.

Of these, two—*Icterus pustulatus* and *Pheugopedius felix pallidus*—are victims of the typical race of this Cowbird—*T. aeneus aeneus* (Wagler); the other three being hosts of the eastern form *T. a. involucratus* Lesson.

U. S. National Museum.
Washington, D. C.

THE FORTY-EIGHTH STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION, OCTOBER 20-23, 1930.

BY T. S. PALMER.

BY a fortunate combination of circumstances the tenth New England meeting of the American Ornithologists' Union was held in Salem during the Ter-Centenary celebration of the founding of the Massachusetts Bay Colony at that place. In addition to its historic background of colonial life and institutions vividly revived in connection with the celebration of the founding of the town, and its many historic and literary associations, Salem possesses peculiar attractions for the ornithologist in the Peabody Museum and the Essex Institute. The former has the distinction of being the second oldest museum in the United States and the latter is widely known through its publications including Proceedings, Bulletins, and the early volumes of the American Naturalist in which may be found papers by Allen, Bendire, Coues, Mearns, Nelson and other early members of the Union.

The headquarters were at the Hotel Hawthorne only a short distance from the Peabody Museum where accommodations were provided not only for the public meetings but also for the business sessions.

Business Sessions: The meetings on Monday as usual included two sessions of the Council at 10 A. M. and 2.30 P. M., a meeting of the Fellows at 4 P. M., and a joint meeting of the Fellows and Members at 8 P. M..

At the election of the Fellows the three vacancies in the list were filled by the election of Alfred O. Gross, Arthur H. Howell and Loye Holmes Miller. At the evening meeting 31 Fellows and 22 Members were present. The report of the Secretary was presented showing a total membership of 1960, the Treasurer reported total receipts of $11,612.17 and total disbursements of $10,723.36 leaving a balance of $888.81. The report of the Investment Trustees showed Permanent Funds of the Union amounting to $29,765 including $7,421 in the Brewster Memorial Fund.

Five Members were elected from the class of Associates and, on recommendation of the Council, 2 Honorary Fellows, 4 Corresponding Fellows and 190 Associates were also elected.

The general business transacted included a further appropriation for the publication of the 'Check List of North American Birds' which is expected to be issued before next summer, and an authorization for clerical work and for beginning printing the 'Ten Year Index of the Auk' for 1921-30 on which a committee of eight members is already making good progress. The Union also took action to assist in the publication of the chapter on 'Aves' in the annual volume of the 'Zoological Record.'

As 1933 will mark the semi-centennial of the founding of the Union a committee was appointed to report a plan at the next meeting for a suitable anniversary volume. The suggestion was made that such a volume should present a brief but comprehensive review of the progress in American ornithology since 1883. An invitation to hold the semi-centennial meeting in New York at the American Museum of Natural History where the Union was originally organized, was accepted with the appreciation of the Union. Inasmuch as the place of meeting for 1933 was definitely decided, similar arrangements were also made for the meetings for 1931 and 1932. A number of invitations for the next annual meeting were received from various places. Among others were letters from the Mayor, Chamber of Commerce, Board of Trade and other organizations in Detroit, and a cordial invitation from the Minister of Colonization, Mines and Fisheries of Quebec. After careful consideration of the various invitations the Union voted to hold the the annual meeting in 1931 at Detroit, Mich., at a time to be fixed by the Local Committee on Arrangements, and to accept the invitation of the Deputy Minister of Colonization, Mines and Fisheries to hold the meeting in 1932 in Quebec.

Resolutions were adopted expressing the thanks of the Union to the President and Trustees of the Peabody Museum, the Essex Institute, the Director of the Museum of Comparative Zoology, the Essex County Ornithological Club and the members of the Nuttall Ornithological Club for various courtesies extended during the meeting.

Public Sessions: The public meetings were held October 21

from 10 A. M. to 12 M. and October 22 and 23 from 9 A. M. to 5.30 P. M. The general sessions met the first two days in the Lecture Hall and on the third day in the Hall of Ethnology. The technical sessions met on Wednesday in the Work Room and on Thursday in the Lecture Hall. As in previous meetings the program required simultaneous sessions on Wednesday and Thursday mornings but all except four of the 53 papers were read.

The meeting opened with an address of welcome by General Francis Henry Appleton on behalf of the Trustees of the Peabody Museum and a response on behalf of the Union by the Secretary. The program reflected some of the more important activities of the Union in the field, the museum, the laboratory and the library. Reports of recent field work included accounts of birds found on Southampton Island, in Guatemala, Peru, Australia, New Zealand and on the coasts of the Red Sea. Both general and technical sessions were varied with papers on distribution, life histories, migration, nomenclature, bird banding and conservation, while the activities of former Fellows were reviewed in the memorials of Arthur T. Wayne and Henry Nehrling.

For the first time in some years a presidential address was presented. Dr. Grinnell took as his subject 'An Analysis of Trends in the American Ornithologists Union' in which he discussed its policies and what it is possible for it to do for the members and for ornithology. He emphasized the importance of personal contact, the encouragement of research, recognition of meritorious work by bestowal of honors and award of prizes, support of field and museum projects, maintenance of high scientific standards in spite of demand for popular papers in its publications, and in the programs of its meetings, dissemination of accurate information regarding birds, and an intelligent understanding of the problems of conservation, administration of wild life resources and popular education.

Mr. Redington gave a resumé of 'The Bird Work of the U. S. Biological Survey' during the last 45 years, reviewing briefly the activities of the Survey in connection with geographic distribution, life zones, migration, bird banding, food habits, regulating importation of foreign species, protecting migratory birds and establishing refuges. Dr. Pearson presented a report of the Seventh

International Ornithological Congress at Amsterdam illustrated by portraits of some of the prominent ornithologists who were in attendance.

From the field the outstanding report was George M. Sutton's account of 'The Birds of Southampton Island,' at the north end of Hudson Bay. This was the first report on the birds of the island ever made by an ornithologist. He spoke of the scarcity of birds in winter, the first arrivals in spring and last departures in autumn, and announced the finding of the Blue Goose breeding at Coral Inlet, Prairie Point and Cape Kendall. This paper was supplemented by Todd's 'Birds of Hudson Bay in 1930,' in which he summarized the results of his recent field work in a little known region in northern Laborador. Field work in the tropics was represented by Griscom's 'Distribution of Bird Life in Guatemala' and Zimmer's 'Field Notes from Peru.' Attention was called to peculiarities in distribution due to differences in the elevation of the valleys of Peru and to the presence of certain migrants from the eastern rather than the western part of North America. Bowen's account of 'Bird Life of the Red Sea Coast Lands' and Cope's 'Four Months in New Zealand', both well illustrated, brought out clearly some of the more characteristic features of the avifauna of these remote regions.

The technical papers covered a wide range of subjects. Perhaps the most novel contribution was Patten and Kramer's motion picture of the 'Beginning of the Heart Beat and Circulation in the Embryo'—the first attempt to illustrate embryonic development with so much detail by the aid of motion picture film. In discussing 'The Boreal Element in the West Indian Avifauna,' Chapman called attention to the presence of *Brachyspiza*, Crossbills and a few other birds of northern origin in Santo Domingo and their absence from Florida. Their presence may be explained by the fact that when many species of mammals and birds in the north were forced south during the Glacial Period the large mammals retreated to the southern States and there perished, whereas the birds were able to cross over to the West Indies where some of them have since remained. Kendeigh's 'Variability of Body Temperatures' and Worley's 'Weight Variation of Certain Land Birds' illustrated some of the recent basic investigations of the Baldwin Bird Re-

search Laboratory. Griscom's 'Parallel Variations in Two Guatemalan Orioles' (*Icterus gularis* and *I. sclateri*) brought out some of the peculiarities of distribution of Central American Orioles of which 13 species occur in Guatemala, while Murphy's 'Conditions Controlling the Distribution of Sea Birds on the Pacific Coast of South America' due to the presence of the Humboldt Current, Friedmann's 'Observations on the Species Problem in African Birds' and Austin's 'Origin of an Avifauna' illustrated by the case of Labrador, discussed some of the broader questions underlying the subject of geographic distribution of species.

Of more general interest were several papers on a variety of subjects. Rogers reviewed briefly the history of the Princeton Museum beginning in 1870 and outlined a plan for its future. Grinnell summarized the 'Type Localities of Birds Described from California,' 228 in number, and emphasized the importance of determining the types and type localities, listed the more important type localities and the present location of the types of birds described from the State. In 'Some Thoughts on the Check List' Stone explained various details of the work, beginning with the care taken in revising the classification, the ranges of species and the references to original descriptions, Chapman's discussion of the 'Turkey Buzzard's Sense of Smell' described a series of experiments made recently at Barro Colorado in the Canal Zone. DeLury's 'Sunspots and Grouse' emphasized the curious coincidence in the variations of sunlight and abundance of birds. The variation in the sun's light between maximum and minimum sunspot periods is as much as 50 per cent and observations over a number of years showed that in times of maximum sun light grasshoppers were abundant, as were also certain species of grouse. Eaton's 'Birds of New York Twenty Years Afterwards' reviewed the changes during the past two decades during which Grasshopper Sparrows, Turkey Buzzards and Swans had increased while Bluebirds were now only one tenth as abundant as twenty years ago and the Bartramian Sandpiper is holding its own in only three places known to the author.

Dr. Phillips outlined the viewpoint of 'Naturalists, Nature Lovers and Sportsmen,' emphasized the importance of coöperation between these three groups and declared that a radical change was necessary in modern methods of conservation if abundance of cer-

tain species was to be maintained. This paper, like several of the others, developed considerable discussion and brought out the wide range of opinions held by some of the listeners.

The life history contributions comprised a number of interesting studies of individual species or groups of species and ranged from Mrs. Harding's 'Nesting Habits of the Black-throated Blue Warbler,' Farley's 'Nesting of the Greater Yellowlegs in Alberta,' Mousley's 'Study of the Home Life of the Alder Flycatcher,' Terrill's 'Life Histories of the Saw-whet and Long-eared Owls' and Nichols 'Stray Notes on the Flocking Habits of Shore Birds' to the more detailed illustrated discussion by Saunders of the 'Ecology of the Ruby-throated Hummingbird in Allegany State Park' and Cope's 'A Day With the Australian Lyre Bird' in Sherwood Forest near Melbourne. This last paper was illustrated by some remarkable pictures taken by Sharland some of which are reproduced in 'The Emu' for October 1930. The life histories of game birds occupied a large part of the moving picture program on Thursday afternoon and included Bennett's splendid pictures of the 'Spring Life of the Prairie Chicken,' Gross' 'Wisconsin Prairie Chicken Investigations' and Breckenridge's 'Courtship of the Sharp-tailed Grouse.' These were varied by Arthur Allen's 'Shorebird Revue' of a number of Plovers and Sandpipers observed near Ithaca, and Leister's 'Feeding Habits of the Ducks of the Cayuga Lake Region,' New York.

Exhibits: Although no extensive exhibit was undertaken in connection with this meeting, through the courtesy of the Peabody Museum and the coöperation of half a dozen of the members a very interesting series of nearly 200 paintings, drawings and etchings of birds was installed in the hallway and some of the rooms of the Museum. The paintings included 6 by Frank W. Benson of Salem and a large painting of an eagle recently completed, 7 by W. J. Breckenridge of Minneapolis, 10 by John D. Smith of Boston, and 29 by Walter A. Weber of Chicago. There were 65 drawings by Edmund J. Sawyer of Pontiac, Mich., 25 etchings by Benson and a series of 56 water colors of Arctic species made in the field by George M. Sutton during his recent trip to Southampton Island. During the course of the meeting advance copies of three important works on birds were also exhibited by the authors, Grinnell, Dixon

and Linsdale's 'Vertebrate Natural History of the Lassen Peak Region' in California, Mrs. W. W. Naumburg's comprehensive report on 'The Birds of Matto Grosso, Brazil' and a prospectus and sample plates of the 'Birds of Minnesota' by Dr. Thomas S. Roberts which is now in course of publication.

Social Features: The social features began with a dinner to the Fellows tendered by Dr. John C. Phillips in the Peabody Museum on Monday evening at which 29 were present. The regular program was suspended at noon on Tuesday and the members repaired to Salem Willows where a fish dinner arranged by the Local Commitee was served. After luncheon the members returned to the Hotel Hawthorne and the afternoon was devoted to excursions about Salem and the vicinity. Under the direction of the members and competent guides some of the parties visited historic points in town, including the House of Seven Gables, the old Custom House, the home of Hawthorne, the Ropes Memorial House, the museum and library of the Essex Institute containing among many other interesting items collections of Hawthorneana and a notable collection of early editions of Whittier's works. A visit was also paid to the Pioneer Village installed to illustrate the mode of life of the early colonists during the first winter at Salem. Here could be seen in realistic form the types of wigwams, log cabins and thatched huts in which the founders of Salem lived, the tools and utensils used in their daily occupations and the primitive industries of the early settlement. Meanwhile other parties visited the shore at Nahant, Lynn, Swampscott, and Marblehead in search of birds and were successful in finding several interesting species.

Tuesday evening was 'Open House' at the Peabody Museum when members and their friends had an opportunity to examine the excellent local collection of Essex County birds, and the extensive marine and oriental collections of the Museum.

The annual dinner on Wednesday at the Hotel Hawthorne was attended by 212 members and guests. The entertainment after the dinner included an eloquent address by Hon. Herbert Parker, former Attorney General of Massachusetts, who was toastmaster of the evening and introduced the various speakers. Mr. Parker himself a student and lover of birds, referred to what the bird life must have been when Salem was making maritime history, men-

tioned some of the records of Essex County and emphasized the charms of bird study. Mr. A.P. Morse explained the work of Charles E. Moulton of Lynn in imitating bird songs and imitations of a number of species were then given by Mr. Moulton. Finally Dr. Towsend exhibited a series of lantern slides showing scenes and portraits of some of the prominent foreign ornithologists which he secured during his recent trip to Europe to attend the International Ornithological Congress.

On Friday the members and guests, numbering about 80, proceeded by motor bus to Ipswich and spent the day among the sand dunes in search of birds under the guidance of Dr. Townsend and local members. The weather, which had been clear during the entire week, changed to rain, but the members who were fortunate enough to make the trip were rewarded by seeing the Gannet, Ipswich Sparrow and several other interesting birds.

THE PROGRAM.

(Papers are arranged in the order in which they were presented at the meeting. Those marked with an asterisk (*) were illustrated by lantern slides.)

TUESDAY MORNING.

Welcome by GENERAL FRANCIS HENRY APPLETON on behalf of the Trustees of the Peabody Museum of Salem.

Response on behalf of the Union, by the Secretary.

Roll Call of Fellows and Members, Report of the Business Meeting, Announcement of the Results of Elections.

1. An Analysis of Trends in the American Ornithologists' Union. Presidential Address by JOSEPH GRINNELL, Museum of Vertebrate Zoology, Berkeley, Calif. (30 min.)
2. In Memoriam: Henry Wetherbee Henshaw, 1850–1930. EDWARD W. NELSON, Washington, D. C. (Read by title.)
3. In Memoriam: Arthur Trezevant Wayne, 1863–1930. ALEXANDER SPRUNT, JR., Charleston Museum, Charleston, S. C. (20 min.)
4. The Boreal Element in the West Indian Avifauna. FRANK M. CHAPMAN, American Museum of Natural History, New York. (15 min.)
5. The Bird Work of the U. S. Biological Survey. PAUL G. REDINGTON, Chief, Biological Survey, Washington, D. C. (20 min.)

WEDNESDAY MORNING—GENERAL SESSION.

6. *Variability of Body Temperature in Birds. S. CHARLES KENDEIGH, Baldwin Bird Research Laboratory, Cleveland, O. (20 min.)

7. In Memoriam: Waldron DeWitt Miller, 1879–1929. JAMES P. CHAPIN, American Museum of Natural History, New York. (Read by title.)
8. *Five Years' Progress in Bird Sanctuaries on the North Shore of the Gulf of St. Lawrence. HARRISON F. LEWIS, Canadian National Parks, Ottawa, Canada. (15 min.)
9. *Nesting Habits of the Black-throated Blue Warbler. MRS. KATHARINE C. HARDING, Brookline, Mass. (30 min.)
10. The Post-breeding Northern Migration of North American Herons. CHARLES W. TOWNSEND, Ipswich, Mass. (10 min.)
11. *A Day with the Australian Lyre Bird. FRANCIS R. COPE, JR., Dimock, Pa. (45 min.)
12. *A Study of the Home Life of the Alder Flycatcher. HENRY MOUSLEY, Montreal, Canada. (30 min.)
13. *Contributions to the Life Histories of the Saw-whet and Long-eared Owls. L. M. Terrill, Montreal, Canada. (15 min.)
14. Birds of New York 20 Years Afterward. ELON H. EATON, Hobart College, Geneva, N. Y. (20 min.)
15. *Sun Spots and Grouse. R. E. DELURY, Ottawa, Canada. (Presented by Hoyes Lloyd.) (10 min.)

WEDNESDAY MORNING—TECHNICAL SESSION.

16. Field Notes from Peru. JOHN T. ZIMMER, American Museum of Natural History, New York. (20 min.)
17. The Florida Red-tailed Hawk. A. C. BENT, Taunton, Mass. (10 min.
18. Type Localities of Birds Described from California. JOSEPH GRINNELL, Museum of Vertebrate Zoology, Berkeley, Calif. (20 min.)
19. Additions to the Known Victims of the Cowbirds. HERBERT FRIEDMANN, U. S. National Museum, Washington, D. C. (10 min.)
20. The Birds of Southampton Island, Hudson Bay. GEORGE MIKSCH SUTTON, Cornell University, Ithaca, N. Y. (30 min.)
21. Conditions Controlling the Distribution of Sea-birds on the Pacific Coast of South America. ROBERT CUSHMAN MURPHY, American Museum of Natural History, New York. (30 min.)
22. The Origin of an Avifauna. O. L. AUSTIN, JR., North Eastham, Mass. (25 min.)
23. Distribution of Bird Life in Guatemala. LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass. (30 min.)

WEDNESDAY AFTERNOON—GENERAL SESSION.

24. *The Seventh International Ornithological Congress at Amsterdam. T. GILBERT PEARSON, President, National Association of Audubon Societies, New York. (20 min.)
25. *The Ecology of the Ruby-throated Hummingbird in Allegany State Park. ARETAS A. SAUNDERS, Fairfield, Conn. (30 min.)

26. *The Turkey Buzzard's Sense of Smell. FRANK M. CHAPMAN, American Museum of Natural History, New York. (30 min.)
27. Golf Clubs as Bird Sanctuaries. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (20 min.)
28. *Bird Life of the Red Sea Coast Lands. W. WEDGWOOD BOWEN, Academy of Natural Sciences, Philadelphia, Pa. (30 min.)
29. *Four Months in New Zealand. FRANCIS R. COPE, Jr., Dimock, Pa. (45 min.)

THURSDAY MORNING—GENERAL SESSION.

30. Nesting of the Greater Yellowlegs in Alberta. FRANK L. FARLEY, Camrose, Alberta. (Presented by W. E. Saunders.) (20 min.)
31. Bird Banding. The First Decade Under the Biological Survey. FREDERICK C. LINCOLN, Biological Survey, Washington, D. C. (15 min.)
32. Naturalists, Nature Lovers and Sportsmen. JOHN C. PHILLIPS, Wenham, Mass. (20 min.)
33. Mockingbirds in Bangor, Maine. MISS BERTHA L. BROWN, Bangor, Me. (15 min.)
34. The Harvard Square Nighthawks. HORACE TAYLOR, Brookline, Mass. (10 min.)
35. *Must Commercial Eel-grass Beds be protected from Canada Geese and Brant? HARRISON F. LEWIS, Canadian National Parks, Ottawa, Canada. (15 min.)
36. Another Grouse Problem Solved. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (10 min.)
37. House Wren Studies. S. PRENTISS BALDWIN, Baldwin Bird Research Laboratory, Cleveland, O. (Read by title).
38. Birds of Hudson Bay in 1930. W. E. CLYDE TODD, Carnegie Museum, Pittsburgh, Pa. (10 min.)
39. Percentage of Casualty in Birds' Nests. ELON H. EATON, Hobart College, Geneva, N. Y. (10 min.)
40. The Pussyfoot on Pussy. S. PRENTISS BALDWIN, Baldwin Bird Research Laboratory, Cleveland, O. (Read by title.)
41. Stray Notes on the Flocking Habits of Shore Birds. JOHN T. NICHOLS, American Museum of Natural History, New York. (15 min.)
42. Waterfowl on the Potomac River. HARRY C. OBERHOLSER, Biological Survey, Washington, D. C. (25 min).
43. An Experiment in the Recolonization of the Common Tern. C. F. JACKSON AND PHILIP F. ALLAN. (20 min.)

THURSDAY MORNING—TECHNICAL SESSION.

44. *Weight Variation of Certain Land Birds. LEONARD G. WORLEY, Baldwin Bird Research Laboratory, Cleveland, O. (20 min.)
45. *Some Observations on the Species Problem in African Birds. HER-

BERT FRIEDMANN, U. S. National Museum, Washington, D. C. (30 min.)

46. *An Unusual Case of Feather Abrasion. W. WEDGWOOD BOWEN, Academy of Natural Sciences, Philadelphia, Pa. (5 min.)
47. *The Bird Life of Ancient Florida. ALEXANDER WETMORE, Smithsonian Institution, Washington, D. C. (15 min.)
48. *A Grand Island (N. Y.) Heronry. ALBERT R. SHADLE, University of Buffalo, Buffalo, N. Y. (10 min.)
49. *The Simultaneous Molt of the Flight Feathers of the Loon. JOHN B. MAY, Director of Ornithology, Mass. Board Agriculture, Boston, Mass. (5 min.)
50. In Memoriam: Henry Nehrling, 1853–1929. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. (20 min.)
51. Some Thoughts on the Check-List. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. (20 min.)
52. The Princeton Museum of Zoology—Its Ornithological Collections and a Plan. CHARLES H. ROGERS, Princeton University, Princeton, N. J. (15 min.)
53. Parallel Variations in Two Guatemalan Orioles. LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass. (10 min.)

THURSDAY AFTERNOON—MOTION PICTURES.

54. The Spring Life of the Prairie Chicken. WALTER W. BENNETT, Sioux City, Iowa. (45 min.)
55. The Early Bird—Beginning of the Heart Beat and Circulation in the Embryo. BRADLEY N. PATTEN AND THEODORE C. KRAMER, Cleveland, O. (30 min.)
56. Game Bird Studies in Minnesota, including the Courtship of the Sharp-tailed Grouse. W. J. BRECKENRIDGE, University of Minnesota, Minneapolis, Minn. (20 min.)
57. A Shore-bird Revue. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (15 min.)
58. Wisconsin Prairie Chicken Investigations. ALFRED O. GROSS, Bowdoin College, Brunswick, Me. (45 min.)
59. Feeding Habits of the Ducks of the Cayuga Lake Region, N. Y. CLAUDE W. LEISTER, New York Zoological Park, (20 min.)

Attendance: The registration showed the presence of 31 Fellows, one Retired Fellow, 31 Members, and 119 Associates, or a total of 182 members, while the visitors increased the number present to over 200. Among the Fellows were two of the founders, Charles F. Batchelder and A. K. Fisher, and three elected at the first meeting, Ruthven Deane, Thomas S. Roberts, and W. E. Saunders. Among those who came from a distance were Allan C. Brooks from British

Columbia; Dr. Joseph Grinnell, Robert T. Moore, and Dr. Walter K. Fisher from California; George B. Saunders from Oklahoma; W. W. Bennett from Iowa; Dr. T. S. Roberts and W. J. Breckenridge from Minnesota.

Representatives were present from 22 States, the District of Columbia, and the Provinces of British Columbia, Ontario, and Quebec. The States represented and the number registered from each State were as follows: Maine, 5; New Hampshire, 4; Vermont, 1; Massachusetts, 59; Connecticut, 3; New York, 32; New Jersey, 6; Pennsylvania, 19; Delaware, 1; Maryland, 1; Virginia, 1; West Virginia, 1; South Carolina, 1; Georgia, 1; Ohio, 7; Illinois, 3; Michigan, 4; Wisconsin, 1; Minnesota, 2; Oklahoma, 1; Iowa, 1; California, 3; and the District of Columbia, 16. The largest delegations outside of Massachuestts included 32 from New York, 19 from Pennsylvania, 16 from the District of Columbia, and 9 from Canada.

Seventeen museums were represented by one or more of their members, namely, the Academy of Natural Sciences of Philadelphia; American; Canadian National; Carnegie; Charleston; Cleveland; Field; Museum of Comparative Zoology; Museum of Natural History, Portland, Maine; Museum of Vertebrate Zoology; Peabody; Princeton; Royal Ontario; University of Michigan; University of Minnesota; U. S. National; and Worcester Natural History Society.

Eleven colleges and universities were also represented, namely, Bowdoin, Cornell, Harvard, Haverford, Princeton, Stanford, University of Buffalo, University of California, University of Michigan, University of Minnesota and Western Reserve, Cleveland, O. An encouraging feature of this attendance was the number of young men from Cornell, Haverford, Harvard, and Princeton.

The representation whether considered from standpoint of States, museums, or higher institutions of learning was about the same as that last year even with a somewhat less attendance than at Philadelphia.

As a record of the meeting a group photograph of 118 of those present was taken on Thursday in the grounds on the south side of the Museum.

FELLOWS, AND MEMBERS AND ASSOCIATES PRESENT.

FELLOWS:—Arthur A. Allen, Glover M. Allen, Outram Bangs, Thomas Barbour, Charles F. Batchelder, Arthur C. Bent, Allan C. Brooks, Frank M. Chapman, Ruthven Deane, Albert K. Fisher, James H. Fleming, Herbert Friedmann, Joseph Grinnell, Ludlow Griscom, Alfred O. Gross, Arthur H. Howell, Waldo L. McAtee, Robert C. Murphy, Harry C. Oberholser, T. S. Palmer, James L. Peters, John C. Phillips, Charles W. Richmond, Joseph H. Riley, Thomas S. Roberts, William E. Saunders, Witmer Stone, Percy A. Taverner, W. E. Clyde Todd, Charles W. Townsend, Alexander Wetmore.—Total 31.

RETIRED FELLOW: Walter K. Fisher.

MEMBERS:—Francis H. Allen, Harold C. Bryant, Hubert L. Clark, Maunsell S. Crosby, Elon H. Eaton, F. Seymour Hersey, Frederick H. Kennard, Harrison F. Lewis, Frederick C. Lincoln, Hoyes Lloyd, William I. Lyon, George H. Mackay, John B. May, Robert T. Moore, W. Henry Mousley, Mrs. Walter W. Naumburg, John T. Nichols, Arthur H. Norton, T. Gilbert Pearson, Edward A. Preble, Charles H. Rogers, Aretas A. Saunders, Lester L. Snyder, Alexander Sprunt, Jr., J. Fletcher Street, George H. Stuart, 3d, George M. Sutton, Winsor M. Tyler, Josselyn Van Tyne, Francis B. White, John T. Zimmer.—Total 31.

ASSOCIATES (by States):

Connecticut, 2—Mrs. C. B. Graves, New London; Mrs. F. D. Hubbard, New Haven.

Delaware, 1—J. H. Otterson, Wilmington.

District of Columbia, 4—Miss K. B. Baird, C. H. M. Barrett, R. B. Horsfall, H. S. Peters, Washington.

Georgia, 1—H. B. Skeele, Savannah.

Illinois, 1—W. A. Weber, Chicago.

Iowa, 1—W. W. Bennett, Sioux City.

Maine, 3—Miss Bertha L. Brown, Bangor, E. P. Brown, Belfast; Glen D. Chamberlain, Fort Fairfield.

Maryland, 1—W. C. Henderson, Chevy Chase.

Massachusetts, 44—E. H. Atherton, Jamaica Plain; O. L. Austin, Jr., North Eastham, A. C. Bagg, Holyoke; Miss. A. K. Barry, Dorchester; Miss A. M. Bowen, Springfield; Rev. Earle A. Brooks, Newton Highlands; Maurice Broun, Lenox; Mrs. Jean E. Carth, Wellesley; Rev. Robert F. Cheney, Southborough; C. E. Clark, Medford; Mrs. P. S. Crowell, Franklin; L. B. Chapman, Newton Highlands; Miss Bertha E. Davis, Brookline; Miss Martha Denny, Brookline, Mrs. S. H. Dudley, Berlin; Mr. and Mrs. Owen Durfee, Fall River; S. G. Emilio, Salem; Lawrence B. Fletcher, Cohasset; C. B. Floyd, Auburndale; Mrs. R. B. Harding, Brookline; Mrs. A. B. Harrington, Boston; Richard Hinchman, Milton; Miss H. C. Hunt, Cambridge; S. W. Jenkins, Salem; H. P. Kelsey, Salem; Miss J. E. Kloseman, Boston; Lawrence Kelham, Boston; Ralph Lawson, Salem; Daniel S. Lowe, Marblehead; S. H. Lowe, Quincy; Herbert E. Maynard,

Boston; A. P. Morse, Salem; Harry C. Parker, Worcester; Keble B. Perine, Newton; O. S. Pettingill, Jr., Middleton; W. B. Porter, Salem; Miss F. A. Stebbins, Springfield; R. C. Sherwood, Springfield; W. R. Spofford, Berlin; Horace Taylor, C. H. Van Tyne, and B. B. Warfield, Cambridge; W. P. Wharton, Groton.

Michigan, 3—Mrs. E. K. Frey, Jackson; M. J. Magee, Sault Ste. Marie; E. J. Sawyer, Pontiac.

Minnesota, 1—W. J. Breckenridge, Minneapolis.

New Hampshire, 2—G. C. Atwell, Strafford; Miss Nina G. Spaulding, Jaffrey.

New Jersey, 5—B. S. Bowdish, Demarest; C. L. Bull, Oradell; E. G. Loomis, Newark; C. A. Urner, Elizabeth; L. O. Williams, Princeton.

New York, 23—John H. Baker, New York City; Clarence M. Beal, Jamestown; A. R. Brand, Ithaca; Miss F. L. Bristol, Brooklyn; H. S. Brodt, Jr., New York; Verdi Burtch, Branchport; Mrs. F. M. Chapman, New York; Robert Darrow, Ithaca; W. W. Grant, Geneva; George E. Hix, Brooklyn; F. L. Jaques, C. W. Leister, Mrs. R. C. Murphy, W. W. Naumburg, and Miss Theodora Nelson, New York; James Savage, Buffalo; A. R. Shadle, Buffalo; A. K. Smiley and Daniel Smiley, Jr., Lake Mohonk; Mrs. H. W. Smith, Islip; Mr. and Mrs. Carll Tucker, New York; W. A. Welter, Ithaca.

Ohio, 7—John W. Aldrich, Cleveland; G. M. Cook, Youngstown; A. B. Fuller, Cleveland; W. C. Herman, Cincinnati; S. C. Kendeigh, Amherst; James Stevenson, Cleveland; C. F. Walker, Columbus.

Oklahoma, 1—George B. Saunders, Oklahoma City.

Pennsylvania, 15—D. G. Baird, Philadelphia; John Bartram, West Chester; W. W. Bowen and C. Emerson Brown, Philadelphia; B. H. Christy, Sewickley; F. R. Cope, Dimock; A. C. Emlen, and John T. Emlen, Jr., Philadelphia; B. C. Hiatt, Haverford; J. W. Large, Reading; A. W. Robinson and Miss Rachel G. Robinson, Haverford; J. B. Semple, Sewickley; H. T. Underdown, Philadelphia; T. E. Winecoff, Harrisburg.

Vermont, 1—W. P. Smith, Wells River.

Virginia, 1—Paul G. Redington, Falls Church.

Wisconsin, 1—Clarence Jung, Milwaukee.

Canada, 1—L. M. Terrill, St. Lambert, Quebec.

ELECTION OF OFFICERS.

The election of officers for 1931 resulted in the reëlection of the officers of the preceding year as follows: President, Joseph Grinnell; Vice-Presidents, A. C. Bent and J. H. Fleming; Secretary, T. S. Palmer; Treasurer, W. L. McAtee. Members of the Council (in addition to officers and ex-presidents) J. P. Chapin, Ruthven Deane, H. C. Oberholser, J. L. Peters, C. W. Richmond, T. S. Roberts, and P. A. Taverner.

The Council elected Witmer Stone, Editor of 'The Auk'; W. L. McAtee, Business Manager; George Stuart, 3d, C. B. Riker and Edward Norris,

Trustees; and A. C. Bent, Ruthven Deane, J. H. Fleming, W. L. McAtee, and T. S. Palmer members of the Finance Committee.

ELECTION OF FELLOWS, MEMBERS AND ASSOCIATES.

FELLOWS—3

Alfred Otto Gross, Brunswick, Maine.
Arthur Holmes Howell, Washington, D. C.
Loye Holmes Miller, Los Angeles, Calif.

HONORARY FELLOWS—2

Count Ettore Arrigoni Degli Oddi, Padua, Italy.
Erwin Stresemann, Berlin, Germany.

CORRESPONDING FELLOWS—4

Masauji Hachisuka, London, England.
Henry Eliot Howard, Clarelands, England.
Rear Admiral Hubert Lynes, R. N., London, England.
Capt. Hugh Frederic Stoneham, Ketale, Kenya Colony.

MEMBERS—5

Alfred Marshall Bailey, Chicago, Ill.
Henry Boardman Conover, Chicago, Ill.
Lee Saunders Crandall, New York City.
Harrison Flint Lewis, Ottawa, Canada.
John Bichard May, Boston, Mass.

ASSOCIATES—190

The names of Associates who have qualified will appear in the annual directory of members in the April number of 'The Auk.'

REPORT OF THE SECRETARY.

BY T. S. PALMER.

THE close of the forty-seventh year finds the Union in a satisfactory condition as to its general activities and membership, although some of its objects have not yet been attained. The Check list which it was hoped to have ready for distribution is still in press and the membership which we had expected to reach 2,000 remains a little under that mark.

Membership: The total membership is now only 102 more than reported last year notwithstanding the fact that 231 new Associates were elected in 1929. Unavoidable losses due to death, resignation and delinquency still prevent rapid increase in the total membership. As shown by the list published in 'The Auk' for April 1930 the members are distributed in all the States and Territories and in about forty foreign countries and colonies. We have more than 125 members in Canada and the total number residing outside the United States represent at least 12 per cent of the total membership. The following tabulated statement shows the figures for the present membership in comparison with those for the last year and ten years ago:

	Fellows	*Retired Fellows*	*Honorary Fellows*	*Corresponding Fellows*	*Members*	*Associates*	*Total*
1920	49	3	19	75	86	910	1142
1929	46	4	24	80	103	1601	1858
1930	47	3	23	79	103	1705	1960

Losses by death included 2 Fellows, 1 Retired Fellow, 1 Honorary Fellow, 2 Corresponding Fellows, 2 Members, and 22 Associates, a total of 30.

Through the activities of the Treasurer, the membership has been considerably extended in certain foreign countries during the past two years, particularly in Australia, England, Finland, and Germany, but there are still large areas in eastern Europe and in Asia in which the Union is entirely unrepresented.

Activities of Members Abroad. During the past year much activity in work in foreign lands has been manifested on the part of

members of the Union. At the Seventh International Ornithological Congress held in Amsterdam, Holland, June 1 to 6, the Union was represented by nine of its members: Dr. Alexander Wetmore, ex-President, representing the Smithsonian Institution; Dr. Frank M. Chapman of the American Museum of New York and Mrs. Chapman; Dr. James P. Chapin of the American Museum, New York; Dr. T. Gilbert Pearson, President, National Association of Audubon Societies, New York; J. H. Fleming of the Royal Ontario Museum, Toronto; Harry S. Swarth of the California Academy of Sciences, San Francisco; Dr. Casey A. Wood of Chicago, Ill., and Dr. Charles W. Townsend of Ipswich, Mass.

In addition to attendance at the Congress, Dr. Wetmore spent some time in field work in northern Spain and several of the other members visited other countries beside Holland. Among other members who were engaged in work or travel in Europe last summer should be mentioned Dr. E. C. Hellmayr, Mrs. W. W. Naumburg, Dr. W. H. Osgood, and Outram Bangs, all of whom were occupied in research at various museums.

In tropical America, Ludlow Griscom and Maunsell S. Crosby spent some time in field work in Guatemala. James A. G. Rehn accompanied by John T. Emlen, Jr., and C. Brooke Worth have returned from Honduras with a collection of about 5,000 birds. James Bond has continued his work in the West Indies and Dr. Paul Bartsch spent some months on the southern coast of Cuba, on Grand Cayman and in the southern Bahamas and brought back about 1,000 birds. In South America, Ernest G. Holt has returned to Venezuela to continue the investigations begun there several years ago and is now with the Commission which is surveying the boundary line between Brazil and Venezuela. M. A. Carriker has recently returned from Peru and R. T. Moore from Ecuador where he was chiefly in search of Hummingbirds.

In the South Pacific the Sanford Whitney Expedition has completed its work in the Solomon Islands and returned to British New Guinea before proceeding to the Caroline Islands and other points.

In Australia, Dr. Hubert L. Clark has been collecting in Tasmania and in Northern Australia.

In Asia, George D. Wilder has recently gone to China and Dr.

Hugh M. Smith, Commissioner of Fisheries of Siam and now on a visit to Washington has brought back about 800 birds, making a total of about 4000 secured during his residence in the Orient. H. G. Deignan is still at Chiengmai, Siam, and Carter R. Whittaker who entered the U. S. Consular Service last year has taken up residence at Yokohoma, Japan, and through Japanese ornithologists has become much interested in the birds of that country.

In Africa several members have been actively engaged in field work. Arthur Lovering has returned after a year's absence with about 1,000 birds and R. M. De Schauensee has made a successful trip from Cape Town to Dar-es-Salaam touching the Kalahari Desert en route. A. B. Fuller has returned from Kenya Colony with about 600 birds for the Cleveland Museum. Delacour and others on the Madagascar Expedition in the interests of the American, British and Paris Museums have secured some 8,000 birds. In southwest Africa, W. Rudyerd Boulton has continued his explorations in Angola, and in central Africa J. P. Chapin returned to the Belgian Congo last July to supplement his former work on the birds of that region.

Papers of the Philadelphia Meeting.—Of the 60 papers presented at the last annual meeting more than one-third have been published, 13 in 'The Auk' and 10 or more elsewhere. In the following list titles are given in the form in which the papers were finally published. Those which appeared in 'The Auk' include:

No. 3. Pearson's 'In Memoriam: Edward Howe Forbush.'

No. 4. Christy's 'British Birds at a Glance.'

No. 5. Saunders' 'Destruction of Birds at Long Point Light House, Ontario, on Four Nights in 1929.'

No. 7. Fleming's 'In Memoriam: Jonathan Dwight.'

No. 10. Crosby's 'In Memoriam: Newbold Trotter Lawrence.'

No. 14. Shaver & Walker's 'Preliminary Study of the Effects of Temperature on the Time of Ending of the Evening Song of the Mockingbird.'

No. 17. Bowdish's 'Attempt to Restore the Cliff Swallow to New Jersey.'

No. 21. C. H. Townsend's 'In Memoriam: Frederick Augustus Lucas.'

No. 22. Howell's 'Description of a New Subspecies of the Prairie Warbler, with Remarks on two other Unrecognized Florida Races.'

No. 26. Snyder's 'Sexual Differentiation in the Plumage of the Black-bellied Plover.'

No. 46. Cram's 'Birds as a Factor in the Control of a Stomach Worm of Swine.'

No. 49. Wilder's 'Breeding Birds of Peking as Related to the Palaearctic and Oriental Life Regions.'

No. 51. Harper's 'Historical Sketch of Botteri's Sparrow.'

Papers published elsewhere include:

No. 18. Mrs. Gillespie's 'Some Theories Regarding Returns of Banded Birds' in 'Suggestions for a Revised Bird Banding Terminology.' Bird Banding, I, pp. 14–19, Jan., 1930.

No. 24. Wetmore's 'Fossil Birds of the A. O. U. Check List.' Condor, XXXII, pp. 12–14, Jan., 1930.

No. 27. Zimmer's 'Study of the Tooth-billed Red Tanager, Piranga flava.' Field Mus. Nat. Hist., Pub. 269, Zool. Ser., Vol. XVII, No. 5, pp. 169–219, 1 pl., Dec. 18, 1929.

No. 31. Wetmore's 'Remarks on the Avifauna of Haiti and the Dominican Republic,' in Introduction of Wetmore & Swales' 'Birds of Haiti and the Dominican Republic.'

No. 34. Soper's 'Discovery of the Breeding Grounds of the Blue Goose,' in Canadian Field Naturalist, Jan., 1930, pp. 1–11.

No. 36. Gross' 'Prairie Chicken of the Wisconsin Prairies,' in Bird Lore, XXXI, pp. 383–393, 8 figs., Dec., 1929.

No. 39. Lincoln's 'Migratory Status of Mourning Doves is Proved by Banding,' in U. S. Dept. Agr., Yearbook of Agriculture, 1930, pp. 386–389, 1 fig.

No. 47. Sprunt's 'New Factor in the Destruction of Migratory Birds at Charleston, S. C.,' in 'The Cooper River Bridge as a Factor in the Destruction of Migratory Birds,' in Bird Lore, XXXII, pp. 92–95, 1 pl., Feb., 1930.

No. 55. Crandall's 'Collecting Living Birds of Paradise' in 'The New York Zoological Society's Expedition to New Guinea,' in Bull. N. Y. Zool. Soc., XXXII, pp. 215–256, ill., Dec., 1929.

Since the Charleston Meeting in 1928, three papers have been published in addition to those noted in 'The Auk', 1930, pp. 235–236:

No. 26. Townsend's 'Breeding of the Yellow-crowned Night Heron (*Nyctinassa violacea*), at Ipswich, Mass.,' in Bull. Essex County Ornith. Club, No. 11, for 1929, pp. 27–30, 1930.

No. 36. Roberts' 'Some Changes in the Distribution of Certain Minnesota Birds in the Last Fifty Years,' in Univ. Minn., Mus. Nat. Hist., Occasional Papers No. 3, pp. 9–12, 2 figs., 1930.

No. 39. Breckenridge's 'Breeding of Nelson's Sparrow (*Ammospiza nelsoni*) with Special Reference to Minnesota,' in Univ. Minn., Mus. Nat. Hist., Occasional Papers No. 3, pp. 29–38, col. pl. and 2 figs., 1930.

DECEASED MEMBERS, 1929–1930.

HENRY NEHRLING,[1] Fellow, died in his 77th year at Naples, Florida, Nov. 22, 1929.

ARTHUR TREZEVANT WAYNE,[2] Fellow, aged 67, died at Mount Pleasant, S. C., May 5, 1930.

HENRY WETHERBEE HENSHAW,[3] Retired Fellow, aged 80, died in Washington, D. C., Aug. 1, 1930.

HERMANN VON IHERING,[4] Honorary Fellow, died in his 80th year at Budingen, Ober Hessen, Germany, Feb. 24, 1930.

STEPHEN ALFRED FORBES,[5] Corresponding Fellow, died in his 86th year at Urbana, Ill., Mar. 13, 1930.

EMILIE SNETHLAGE,[6] Corresponding Fellow, died in her 62nd year at Porto Velho, Amazonas, Brazil, Nov. 25, 1929.

WALTER DEANE,[7] Member, aged 82, died at Cambridge, Mass., July 30, 1930.

JOHN AUSTIN FARLEY,[8] Member, died in his 70th year at Fall River, Mass., Mar. 17, 1930.

EDWARD ELTON ARMSTRONG,[9] Associate, aged 51, died at Cross Lake, Wis., Apr. 29, 1930.

EDWARD ARNOLD,[10] Associate, aged 65, died at Montreal, Canada, Jan. 2, 1930.

CARLOS AVERY,[11] Associate, died in his 63rd year at Rockville Center, Long Island, N. Y., Oct. 5, 1930.

JOHN MALLORY BATES,[12] Associate, aged 84, died at Hastings, Neb., May 25, 1930.

GEORGE AUGUSTUS BICKNELL, of New York City, Life Associate, died Aug. 1, 1926.

EDWIN BEAUPRE,[13] Associate, died in his 57th year at Kingston, Ontario, June 2, 1930.

FRANKLIN BRANDRETH, Life Associate, aged about 80, died at Ossining, N. Y., in 1929.

HIRAM BYRD, Associate, aged 56, died at Detroit, Mich., July 20, 1930.

CHAUNCEY WARD CHAMBERLAIN,[14] Associate, died in his 79th year at Boston, Mass., Aug. 6, 1930

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[1] For obituary notice, see 'Auk,' XLVII, p. 133
[2] " " " " " " p. 452
[3] " " " " " " pp. 600–601.
[4] " " " " " " pp. 452–453.
[5] " " " " " " pp. 453–454.
[6] " " " " " XLVIII, p.
[7] " " " " " XLVII, pp. 601–602.
[8] " " " " " " pp. 461–462.
[9] " " " " " " pp. 459–460.
[10] " " " " " " pp. 457–458.
[11] " " " " " XLVIII, p.
[12] " " " " " XLVIII, p.
[13] " " " " " XLVII, p. 603.
[14] " " " " " XLVIII, p.

GEORGE CLEMENT DEANE,[1] Associate, died in his 76th year at Cambridge, Mass., Jan. 14, 1930.

EDWARD ADDISON EVERETT, Associate, died in his 62nd year at Waseca, Minn., Nov. 27, 1928.

ASTON COLBROOK GARDNER, Associate of West Worthing, Sussex, England, died May 25, 1930.

FRED LEROY HOMER, Associate, aged 60, died at Pittsburgh, Pa., Sept. 26, 1930.

HENRY RAYMOND HOWLAND,[2] Associate, died in his 86th year at Buffalo, N. Y., Feb. 4, 1930.

DANA JACKSON LEFFINGWELL,[3] Associate, died in his 29th year at Pullman, Wash., Mar. 6, 1930.

JAMES FRANK L'HOMMEDIEU, Associate, aged 52, died at Indian Springs, Ga., Sept. 14, 1930.

GEORGE MARTYN MCNEIL, Associate, of Winthrop, Mass., died in his 39th year, Sept., 1930.

WALDO LEON RICH,[4] Associate, died in his 76th year at Saratoga Springs, N. Y., Apr. 1, 1930.

MRS. GEORGE GRAY SEARS, Associate, died at Boston, Mass., Oct. 19, 1929.

DANIEL WILLIAM SHEA, Associate, died in his 71st year at Greenland, near Portsmouth, N. H., Oct. 17, 1930.

ROBERT HAMILTON SOUTHARD, Associate, of Newark, N. J., died in August, 1928.

FRANCIS COTTLE WILLARD,[5] Associate, died in his 56th year at Farmingdale, Long Island, N. Y., Feb. 21, 1930.

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[1] For obituary notice, see 'Auk,' XLVII, pp. 456–457.
[2] " " " " " " pp. 603–604.
[3] " " " " " " pp. 458–459.
[4] " " " " " " p. 604.
[5] " " " " " " pp. 455–456.

REPORT OF THE COMMITTEE ON BIOGRAPHY AND BIBLIOGRAPHY.

BY T. S. PALMER, CHAIRMAN.

DURING the year the Committee on Biography and Bibliography has engaged in several distinct projects. In the preparation of the annual list of members efforts were made to obtain the full names of all members; those of Fellows, Honorary Fellows, Corresponding Fellows, and Members are now practically complete, and those of Associates, except about 50 have been published in full.

In preparing the list of deceased members, published this year for the first time since 1925, the entire list was subjected to careful revision. Several missing dates and names were obtained and in a few cases important corrections made when re-examination of the dates showed that previous entries were based on imperfect or incorrect data. Much assistance in this connection was rendered by Ruthven Deane and Dr. H. B. Wood. The list as published in the April 'Auk' contains not only a complete list of the 500 or more deceased members with their full names and dates of death, but also references to obituary notices of nearly 300 of the members.

In each number of 'The Auk' have appeared several obituary notices prepared for the most part either by members of the Committee or at their solicitation. During the year several notices were also published of members who died in previous years but for whom, on account of lack of information, no notices had been prepared.

Following the publication of the complete list of sets of 'The Auk' in October, 1929, efforts were made to assist various libraries, public and private, in completing the sets in their possession, and a number of changes have been reported as additions and transfers. The additions, including 15 sets in public libraries, number 26 and are as follows: (Asterisks indicate a few numbers missing.)

California—Ralph Ellis, Berkeley; C. G. Abbott, San Diego.
District of Columbia—additional set in the U. S. National Museum.
Hawaii—Bishop Museum, Honolulu.
Illinois—D. C. Klotz, Winnetka (H. K. Coale set).
Iowa—*State Library, Des Moines.

Kansas—University of Kansas, Watson Library, Lawrence; State Agricultural College, Manhattan.
Louisiana—*Tulane University, New Orleans.
Massachusetts—*Peabody Museum, Salem; *F. S. Hersey, Easton.
New York—Wells College, Aurora; E. M. Evans, Mrs. Carll Tucker (Dwight set), and Frank Walters, New York City.
North Carolina—Duke University, Durham.
Ohio—State Museum, Columbus (W. L. Dawson set).
Tennessee—J. M. Shaver, Nashville.
Vermont—Wendell P. Smith, Wells River (Howard Saunders set).
Washington—State College, Pullman.
Wisconsin—Mrs. C. L. Hutchison, Lake Geneva (Ridgway set).
Australia—Australian Museum, Sydney; *Public Library of Victoria, Melbourne.
Canada—Library of Parliament, Ottawa.
Germany—Stätliches Museum, Dresden.
Peru—Harvey Bassler, Iquitos.

Four transfers which make no change in the totals should also be noted. The J. H. Riley set formerly credited to the District of Columbia is now in the library of the University of Virginia at Charlottesville; that belonging to the late Henry Nehrling in the library of Rollins College, Winter Park, Fla.; that of the late C. W. Chamberlain is now the property of Ralph Ellis, Berkeley, Calif., and that of the late John A. Farley is now in the library of O. L. Austin, Jr., North Eastham, Mass.

From the list should be subtracted 3—a set acquired a few years ago by the late Dr. Hiram Byrd in Florida, and those belonging to the late Edward Arnold and Arthur T. Wayne. These changes increase the number of those in public libraries or museums from 109 to 124 and the total number of sets from 232 to 255. In addition to these sets are 14 others which lack only a few of the first six volumes, now very rare, which can no longer be supplied by the Union.

Closely connected with the work of recording complete sets is that of locating and building up incomplete sets. During the year more than 100 back volumes have been sold to libraries interested in filling gaps in their sets. In this connection a list was published in 'The Auk' for October, 1930, showing the location of all public libraries in the United States and Canada which have files of the journal. These number nearly 200, of which 107 have complete

sets. The sets of 'The Auk' in public libraries form the most permanent and important record of the work of the Union. It is highly desirable that the number of libraries be extended considerably in the near future, that there should be at least one set of the journal in a public library in every State and so far as possible in those libraries which make provision through loan systems for making the volumes accessible to readers in remote parts of the State.

Reference may also be made in this report to the activities of others in the field of bibliography. The most important publication of the year is one by Dr. John C. Phillips, entitled "American Game Mammals and Birds, a Catalogue of Books, 1582 to 1925." This bibliography on game and conservation is based primarily on the library of the late Charles Sheldon now in the library of Yale University. In addition to the titles of books are references to many game laws, game decisions, Acts of Congress, and Executive Orders, so that the volume as a whole forms an indispensable index to the literature of American conservation.

Another important work is that by Dr. Casey A. Wood entitled 'Introduction to the Literature of Vertebrate Zoology' based chiefly on titles in the zoological collections of McGill University. This work in two volumes is now in press and will probably appear in 1931. Under the unique title 'Blatchleyana, 1930,' Dr. W. S. Blatchley has recently issued an illustrated pamphlet of 77 pages containing his chronology from 1859 to 1930, a bibliography of 197 titles, including a few on birds, lists of families and higher groups, genera, and species etc. named by him, and a list of genera and species dedicated to him by others. This publication is issued by the Nature Publishing Co., Indianapolis, Ind. Reference should also be made in this connection to a bibliography by Dr. R. M. Strong which has been in course of preparation for some time to supplement Coues' 'Bibliography of Ornithology' by including titles not included in that work especially on the subjects of anatomy, physiology, pigmentation, etc.

Reference has been made in previous reports to two other projects undertaken by the Committee, an index of published portraits of ornithologists and bibliographies of authors. The list of bibliographies now contains the bibliographies of nearly 100 ornithol-

ogists, one of the latest additions is a mimeographed list of the papers of Henry Monsley issued by McGill University. Progress has been made on both of these works during the year, and in the near future it is hoped that one or both can be prepared for publication. In this connection members who have published a considerable number of papers but have not collected the titles are urged to do so with a view either to possible publication or deposit of a copy in a place where it will be accessible to others.

REPORT OF THE COMMITTEE ON BIRD PROTECTION.

BY H. C. BRYANT, CHAIRMAN.

Soon after its appointment in February, the Committee on Bird Protection organized and the chairman requested from each member suggestions as to a program of work for the coming year. The major projects submitted by various members of the Committee indicated that there are many problems needing immediate attention. Those suggested were as follows:

1. Education in the schools.
2. Reduction in the destructiveness of lighthouses.
3. Abatement of oil danger to birds.
4. Protection of birds of prey, and discouragement of anti-vermin campaigns.
5. Establishment of bird sanctuaries.
6. Special consideration of vanishing species.
7. The organization in each State of a Commission supported by a vacationist license.
8. Support of moves for the establishment of true wilderness areas.

With these projects in mind, it was planned to draft a bird protection platform but, before this was accomplished, the attention of the Committee was diverted to two worthy objects—the Eagle Bill then before Congress, and to matters pertaining to the establishment of a Senate Special Committee on Wild Life Resources. After taking a favorable poll of the Committee, letters were addressed to the Congressmen in charge of the Eagle Bill stating that the Bird Protection Committee had endorsed Senate Bill 2908 and House Bill 7794. The question as to the legal propriety of espousing a cause without due sanction of the Union came up in this regard. It was felt, however, that no current project could be aided effectively if sanction were delayed until an annual meeting. If Committee members are chosen because of their talents and interest, sufficient confidence should be imposed in their judgment to allow participation in a timely undertaking within their field of endeavor. If this viewpoint is not in accord with general

policy your Committee will be pleased to submit to any ruling made.

Correspondence with the Secretary of the Senate Special Committee on Wild Life Resources resulted in the furnishing of a list of projects recommended by the Bird Protection Committee of the American Ornithologists' Union as worthy of investigation by the Senate Special Committee. These suggestions were as follows:

1. Danger of replacing native species with foreign ones.
2. Destruction of natural breeding grounds.
3. Protection of American migratory birds by treaties similar to that with Great Britain.
4. Control of alkali poisoning of waterfowl and similar diseases.
5. Oil pollution and its effect on bird life.
6. Dangers of the bounty system and commercial campaigns of destruction as evidenced in the widespread campaign against birds of prey.
7. Need of general public education regarding the economic and aesthetic values pertaining to birds.

An offer was also made the Senate Special Committee of scientific data which might be supplied by various members of the American Ornithologists' Union.

At the last annual meeting of the American Ornithologists' Union resolutions were passed relative to bird losses at the Ontario Long Point light. Believing that Canadian departments concerned would deal adequately with the problem, nothing further has been done.

On May 14, three members of the Bird Protection Committee held an informal meeting in Washington, D. C., at which time a number of matters were discussed, among them scientific collectors' permits and the need for stress on education.

On arrival of the chairman in Washington another meeting was held on October 10 and a bird protection platform was drafted. The admission of a project was determined largely on the basis of whether or not it was in line with these main objects of the Union: sound scientific investigation and the spread of ornithological knowledge, and whether it was of national scope. Furthermore, it was thought best to choose a few major undertakings rather than diffuse effort on many of lesser importance. The platform follows:

PLATFORM OF THE COMMITTEE ON BIRD PROTECTION.[1]

1. We reaffirm belief that the most lasting and useful aid to bird protection lies in the education of all to a knowledge of birds, their interrelationa, and fundamentally, their value to human kind. We pledge support to all moves to include bird study in the school curriculum and to disseminate dependable information on birds helpful in increasing the knowledge of the general public thereon, including those persons to whom hunting licenses are issued.

2. In that certain native birds have been exterminated and others are fast nearing extinction, we believe effort should be directed toward better protection for these disappearing species. The making of a white list is, for manifest reasons, inexpedient. Every ornithologist, however, knows what species should properly be placed on such a list, and the Committee calls upon members of the Union who are in any way concerned to accord to such birds the fullest measure of protection.

3. Believing that the birds of prey on the whole constitute a benefit to human interests rather than a menace, and believing that it is biologically unsound to remove from our avifauna its class of birds of prey, we oppose all bounties and organized campaigns of destruction directed against any member of this group.

4. On the ground that there is increasing danger to our native bird fauna as a result of the introduction of exotic species which compete to the disadvantage of native kinds, we oppose all individual or sporadic and unstudied attempts at acclimatization of exotic species of birds.

5. Modern man-made developments are bringing about wholesale destruction of birds in increasing numbers of ways, as exemplified in drainage, lighthouses, airport beacons, discharge of oil on waters of streams, lakes, harbors and oceans, poison campaigns, and stray cats. We stand for the reduction of these dangers to the minimum.

6. We shall support legislation, either state, national, or by treaty, favoring real bird protection. Inasmuch as success in all efforts toward bird protection is dependent upon a showing of fact,

[1] Unanimously approved by the Committee: H. C. Bryant, *Chairman*, A. C. Bent, Florence Merriam Bailey, Bayard H. Christy, Stanley G. Jewett, Hoyes Lloyd, Edward A Preble.

we shall continue to encourage and, in so far as practicable, support sound scientific research and the provision of proper facilities therefor.

The Committee is agreed that the above are the more important policies based on timely projects which should receive the immediate attention of the Bird Protection Committee, and respectfully asks formal approval of the American Ornithologists' Union.

REPORT OF THE RIDGWAY MEMORIAL COMMITTEE.

BY HARRY C. OBERHOLSER.

AT the meeting of the American Ornithologists' Union in New York, on November 12, 1925, there was authorized a committee for the purpose of raising a fund to establish a memorial to Robert Ridgway. This memorial was to take the form of a bird sanctuary and arboretum by preserving and maintaining the property then owned by Mr. Ridgway, called "Bird Haven," which is situated near Olney, in southern Illinois. This property had been developed by Mr. Ridgway over a period of several years, and and by reason of its association with him and the opportunities here presented for the preservation of birds and plants, it seemed to be the best kind of a memorial to the memory of a man who so greatly loved the out-of-doors. Bird Haven is a tract covering about eighteen acres, with a small stream on one side, and is mostly woodland. On it grow more than fifty species of native trees as well as a great number of shrubs and flowers. By reason of the diversity of its conditions, it is attractive to many birds. Mr. Ridgway offered to deed, free of incumbrance, this land to a properly constituted board of trustees, if sufficient funds could be raised for its maintenance.

An invitation was extended to the Wilson Ornithological Club and to the Cooper Ornithological Club for each to appoint a representative to act with a representative from the American Ornithologists' Union as a national committee for the purpose of raising the memorial fund. As a result of this action Dr. Harry C. Oberholser of Washington, D. C. was appointed for the American Ornithologists' Union; Mr. Percival B. Coffin, of Chicago, for the Wilson Ornithological Club; and Mr. Harry Harris, of Eagle Rock, California, to represent the Cooper Ornithological Club. Subsequently, Mrs. Gertrude Cox of Chicago was added as a special representative for Illinois.

Most of the following year, 1926, was occupied in organizing committees in each State of the Union and in Canada, preparatory

to the campaign for obtaining funds for the memorial. In order to provide an organization for the administration of the fund and of Bird Haven when the latter should be turned over, the Ridgway Bird Haven Association was incorporated under the laws of Illinois, on February 1, 1927, with the following trustees: Dr. Frank M. Chapman, Dr. T. Gilbert Pearson, Mr. Harry Harris, Mr. O. M. Schantz, and Mr. Frank Brassie.

Actual canvass was begun early in 1927, and was continued until the summer of 1929, during which period approximately $27,000 was obtained in cash and pledges. Mrs. Frances K. Hutchinson of Chicago then assumed the responsibility of increasing the fund to $50,000, and thereby provided for the future maintenance of Bird Haven. Mrs. Hutchinson has also purchased and added to the Bird Haven sanctuary the adjoining farm of about 100 acres, which controls the stream that flows through a part of Bird Haven, and which will make possible the establishment of a much more satisfactory sanctuary on an area of approximately 120 acres.

In order more easily to administer the Bird Haven sanctuary, a new organization called the Bird Haven Memorial Association was in 1929 incorporated in Illinois with the following trustees, all of them from that State: Mr. Frank Brassie, Mr. Scott Harrison Eaton, Mr. Stephen S. Gregory, Jr., Mrs. Frances K. Hutchinson, Mr. Guy E. Summers, Mr. Noble Brandon Judah, and Mr. Charles J. Merriam.

This organization, which will replace the Ridgway Bird Haven Association, will take over the property and all funds raised, and will be responsible for the maintenance of the area as a bird and plant sanctuary in perpetuity.

This report would not be complete without mention of those who have aided in one way or another in the accomplishment of the Ridgway memorial. Unfortunately, it is not practicable here to mention all of these, but the chairman of the National Committee wishes to express to all of them his sincere appreciation of this cordial coöperation, without which the results obtained would have been impossible.

A list of the special committees, the chairmen of the State committees, and other donors is, however, subjoined.

LIST OF DONORS TO THE RIDGWAY MEMORIAL FUND.

National Committee.—Dr. Harry C. Oberholser, Chairman; Mr. Harry Harris, Mr. Percival Brooks Coffin, Mrs. Gertrude Cox.

Illinois Special Committee.—Mr. Percival Brooks Coffin, Chairman; Mrs. Gertrude Cox, Mr. O. M. Schantz, Mrs. A. B. Crosby.

New England Special Committee.—Mr. Charles F. Batchelder, Chairman; Mr. Laurence B. Fletcher, Mr. Charles B. Floyd, Mr. Lovell Thompson.

ALABAMA.

Prof. J. M. Robinson, Chairman of Committee.

ARIZONA.

Dr. W. P. Taylor, Chairman of Committee.

ARKANSAS.

Mrs. W. T. Kelton, Chairman of Committee.

CALIFORNIA.

Mr. Harry Harris, Chairman of Committee; Miss Amelia S. Allen, Ralph Arnold, Wm. F. Bade, Mrs. F. T. Bicknell, L. B. Bishop, Allan Brooks, Wm. Alanson Bryan, Mrs. Ella D. Cantelow, A. E. Colburn, Miss Ethel Cream, Donald R. Dickey, Miss Jane F. Easton, J. W. Eggleston, Miss Minerva J. Fargo, W. K. Fisher, L. L. Gardner, Miss Josephine Geiselhair, J. Grinnell, Mrs. J. Grinnell, Miss Anna Head, Mrs. H. M. Hall, Wilson C. Hanna, Ralph Hoffman, David S. Jordan, Miss M. Y. Lafranchise, Frank A. Leach, Los Angeles Audubon Society, Gerald F. MacMuller, John W. Mailliard, Joseph Mailliard, Miss Inez Mexia, Miss Mary Ann Miller, James Moffitt, Miss Nellie Moore, R. T. Moore, G. Frean Morcom, Annette C. Morrison, Harry R. Noack, Mrs. Lida B. Palmatier, Miss Z. L. Parcell, Miss Theresa H. Patterson, Isabel V. S. Pitcher, Guy C. Rich, Miss Agnes V. Ridgway, J. L. Ridgway, Daniel Rowen, John Rowley, Miss E. B. Scripps, Geo. E. Stone, H. S. Swarth, Miss Blanche Vigors, Robert S. Woods, L. E. Wyman.

CANADA.

Prof. William Rowan, Chairman of Committee; C. L. Broley, Allan Brooks, Mrs. Elsie Cassels, Ralph DeLury, F. L. Farley, C. W. Greenwood, B. C. Hibbert, A. G. Lawrence, C. Owen Merriman, Theed Pearce, Spencer Pearse, Province of Quebec Society for the Protection of Birds, C. H. Snell, G. D. Sprot.

COLORADO.

Mr. E. R. Warren, Chairman of Committee; Colorado Audubon Society, Harold R. Durand, A. H. Felger, Miss Sara M. Green, Junius Henderson, Mrs. Clara M. Johnson, Herman W. Nash.

CONNECTICUT.

Mrs. Lucy Stock Chapin, Chairman of Committee; Miss Peggy Bergen, Burroughs Nature Club, Miss Emma P. Foster, George R. Goodwin, Hartford Bird Study Club.

DISTRICT OF COLUMBIA.

Dr. A. K. Fisher, Chairman of Committee; W. L. Abbott, Mrs. Jeannette S. Aspinwall, Audubon Society of District of Columbia, Mrs. F. M. Bailey, Miss Mary E. Beadle, Miss M. R. Brickenstein, Mrs. Thomas L. Casey, Miss May T. Cooke, F. V. Coville, Jas. G. Cumming, Murray T. Donoho, Miss M. Stella Fleisher, George Bird Grinnell, Mrs. Wm. I. Ham, Miss Sadia Haskell, W. C. Henderson, Arthur H. Howell, Robt. B. Lawrence, C. H. Merriam, Lewis R. Morris, E. W. Nelson, Gifford Pinchot, Miss Mary J. Rathbun, Miss Ruth Richards, C. W. Richmond, J. H. Riley, Wm. E. Ritter, Wm. C. Rives, George B. Roth, William Schaus, Miss Marian W. Seville, H. P. Sheldon, George Shiras, III; Erwin F. Smith, Dr. & Mrs. Edgar T. Wherry, Casey A. Wood, Mrs. Amparo de Zeledón.

FLORIDA.

Mr. R. J. Longstreet, Chairman of Committee; Mrs. C. E. Bayley, Princess Cantacuzene, Miss C. J. Carman, Mrs. L. A. Dreyfus, Florida Audubon Society, Mrs. E. D. Floyd, S. A. Grimes, Halifax River Bird Club, Mrs. Julia Hanson, Mrs. George Inness, Jr., W. S. Johnson, Mrs. Antoinette W. Little, Miss Marian W. Little, Mrs. A. F. Newkirk, Mrs. Cassie G. Orr, Geo. E. Robson, Tamiami Bird Club, Miss Sarah A. Turle, Mrs. I. Vanderpool, Francis M. Weston, Alain C. White.

GEORGIA.

Mr. Thomas D. Burleigh, Chairman of Committee; W. J. Erichsen, Chas. O. Handley, L. C. Sanford, H. L. Stoddard.

IDAHO.

Mrs. S. E. Hyde, Chairman of Committee; Miss Pearl Barber, Arthur A. Stevens.

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Biological Survey
Washington, D. C.

GENERAL NOTES.

Simultaneous Loss of Primaries in Prenuptial Moult of Loon.—Under this heading Dr. John B. May in the July 1930 number of 'The Auk' (pp. 412–14) has a note regarding some Loons (*Gavia immer*) which he found in full moult, with all the primaries growing simultaneously in April. Dr. May's remarks interested me particularly as confirming the conclusions I reached when studying the moult of these birds some years ago. As Dr. May quoting Mr. A. C. Bent and others appears to consider that this complete moult of the Loons in the *spring* was hitherto unknown, it is perhaps worth while drawing attention to my description appearing in 'A Practical Handbook of British Birds' Vol. II, pp. 465 *et seq.* this having been published in 1922. I there state of all four Divers on the British List viz. *Colymbus* [*Gavia*] *immer, adamsii, arcticus* and *stellatus* that the adults in acquiring their summer plumage have another complete moult similar to that of autumn, this taking place from February to May. Under the autumn moult I state that the primaries, primary-coverts and secondaries are moulted simultaneously but wing-coverts and innermost secondaries normally. The immature bird so far as I could ascertain moulted only very partially during its first year and its first complete moult did not take place until the bird was rather more than a year old i. e. in the autumn previous to its second winter.—H. F. Witherby, *326 High Holborn, London, England.*

Dovekies on the Coast of New Jersey and Virginia.—The Academy of Natural Sciences of Philadelphia has received no less than five Dovekies (*Alle alle*) during late November and early December, 1930. Three of these were secured or found dead in the vicinity of Cape May on November 21, and December 8 (two); one was obtained near Seaside Park, N. J. on December 8 along with another which at last account was still alive in captivity. The other specimen was obtained on December 5, on Currituck Sound about fifteen miles north of the North Carolina line. Several of the birds were obviously affected by oil.—Witmer Stone, *Academy of Natural Sciences, Philadelphia.*

Sooty Shearwater and Audubon's Shearwater in North Carolina.—Definite records of Shearwaters in North Carolina are so few that notice of recent records seems worthy of publication.

On June 3, 1930, about one mile south of Shackleford Banks, a Sooty Shearwater (*Puffinus griseus*), termed "Gulf Gull" by the boatman, was found dead. It was in good condition and without evidence of death by violence, but with a portion of the lower bowl distended by a pale yellow, watery stool. In addition I saw a live one in flight. Not long after this, reports were received that a number of birds, believed to be the same as this, were seen in a dead or dying condition. On several occasions in the

last three years on trips extending some thirteen miles off shore I have seen what I now feel sure was this species. Previous state records are: May, 1870, one specimen, Coues; June, 1892, one specimen, H. H. Brimley; "about 1897," two specimens and July, 1924, two specimens, R. J. Coles (Auk, January, 1925).

On July 26, 1925, a dying Audubon's Shearwater (*Puffinus lherminieri*) was taken at Bogue Banks by several of us from the U. S. Fisheries Station, Beaufort, skinned by the writer and sent to the National Museum. Previous state records consist of a specimen picked up on the beach near Beaufort, July, 1910, and those reported by Dr. Coles (l. c.) who stated that the species is a common summer visitor at Cape Lookout and that on and after July 25, 1924, more than a hundred stayed in Lookout Bight.

I take pleasure in thanking Mr. H. H. Brimley for information as to North Carolina records and Dr. C. W. Richmond for the date the dying Audubon's Shearwater was taken.—JAMES S. GUTSELL.

Leach's Petrel (Oceanodroma leucorhoa) in the District of Columbia.—While rowing down the Potomac River, a short distance above Hains Point, D. C., October 4, 1930, the writer's attention was attracted to a flock of five Pied-billed Grebes (*Podilymbus podiceps*) feeding in the extensive growth of aquatic plants which are so conspicuous in the late summer. In making his way through this growth in quest of the Grebes, the writer discovered a specimen of Leach's Petrel quietly resting on the water. It was collected and is now in the U. S. National Museum. There have been four previous records for this species at Washington, D. C., the last being in 1891.—W. HOWARD BALL, *1861 Ingleside Terrace, N. W., Washington, D. C.*

In Re "Townsend's Oregon Tubinares."—Dr. Stone has questioned Townsend's North Pacific records of the Yellow-nosed Albatross, Sooty Albatross, Giant Fulmar, and Slender-billed Fulmar, after a brief discussion and quotations, in which he says: "It will, I think, be evident that Townsend had no clear idea of the identity of the various species of Tubinares nor of where he secured the several specimens; that he sent Audubon no information about the four in question and probably did not label them at all; and that he had every opportunity to secure specimens of all four in the South Pacific, while his illness may have made it still more difficult for him to remember which specimens had been obtained at the mouth of the Columbia and which in the South Pacific." (*Auk, XLVII, 1930, pp. 414-415.*)

I may, perhaps, be pardoned for the presentation of the same or similar evidence in a more favorable light in respect to the veracity of that intrepid pioneer ornithologist of the great Northwest, John Kirk Townsend, and of observing the actual sequence in publication dates of the citations, which, from a critic's standpoint, sometimes makes all the difference in the world.

The brig May Dacre, on which Townsend and Nuttall sailed to the Hawaiian Islands, cleared the Columbia river bar December 11, 1834, and on this day the former noted: "We saw, outside the bar, a great number of birds, of various kinds—ducks of several species, two or three kinds of Guillemots (*Uria*)—shags (*Phalacrocorax*) among which was a splendid new species, brown albatross (*Diomedea fusca*), the common dusky Pelican (*P. fuscus*), and numerous *Procellariæ*." Again on the 20th "We observed constantly around us several species of dark Albatross, Puffins, Petrels, etc." Confirmatory data relative to the locality were attached to the specimens of the four species in question, quoted by Audubon as "near" "not far" "within a day's sail" or "some distance from the mouth of the Columbia river." Unfortunately no dates were quoted until the voyage was half completed, when the type specimen of the Black-footed Albatross was taken Dec. 25, in Lat. 30° 44′ N., and Long. 146° W.; a most tangible record.

At this time Townsend was in his 26th year, mentally alert, "with a constitution strengthened and invigorated by healthful exercise," but like almost all collectors of that period, did not appreciate the importance of a fully labeled skin. However there seems no impropriety in his remark upon the similarity of the habits of the Slender-billed Fulmar and Pintado Petrel, for it is obviously an addendum following his South Pacific experience.

Spencer F. Baird came into possession of a number of Audubon's types, including the four in question collected by, and presumably, labelled by Townsend; all of which were duly deposited in the National Museum. The Yellow-nosed Albatross given as "Columbia river," the Sooty Albatross and Giant Fulmar "Coast of Oregon," and the Slender-billed Fulmar, the least authenticated as to locale, "Pacific." (*Birds, 1858.*) All these forms of the Tubinares were of course quite new to Townsend, and to the more experienced Nuttall as well, though neither had the means of knowing whether they were novelties to science, but after Townsend's return home and his specimens in the hands of Audubon, he ventured, in the scientific appendix to his "Narrative," published in April, 1839; to name only *Diomedea fusca*, which name and figure had already appeared in Audubon's 'Birds of America.' A comparison of the names in the final volume published in 1838, and the 'Narrative' reveals that where Audubon had figured the species in his elephant folio, Townsend had followed him; otherwise, Townsend had been unable to follow because the descriptive volume had not appeared at the time his own list had gone to press. That this was well known at the time is proved by Townsend's note on *Sylvia tolmiei*, which Audubon had mistaken for *S. philadelphia*, and later in vol. V of his 'Ornithological Biography' changed to *S. macgillivrayi*. Townsend remarked: "If I had been aware, before publication of my appendix, of Mr. Audubon's wish to name this bird, I should have adopted his appellation with cheerfulness; but as his intention was never communicated to

me, the name which I have given it, having priority, must of course be retained." (*Jour. Acad. Nat. Sci. Phila., viii, 1839,* p. *159.*) How many of Townsend's specific names were adapted by Audubon, it is impossible to state; it is certain that the former was not at all pleased to find that the latter had amended the "*splendens*" of his fine new Violet-green Cormorant to "*resplendens,*" or of his rejection of his name "*tolmiei*" in favor of "*bachmani,*" in the instance of his new Oyster-catcher. However, it is quite possible that Audubon adopted some of Townsend's tentative names for some of his newly discovered Tubinares, as he undoubtedly did in other instances.

Townsend's "Narrative of a Journey Across the Rocky Mountains to the Columbia River, and a Visit to the Sandwich Islands, Chili, etc.," was written originally for the home circle. It is a charming account of the chief incidents of his journey and is easily one of our best narratives of pioneer days in the Northwest.

When Audubon's fifth and final volume of his 'Ornithological Biography' appeared in June, more than two months later than Townsend's 'Narrative,' the latter was enabled to include all the above Tubinares in his 'List of Birds Inhabiting the Region of the Rocky Mountains, the Territory of the Oregon, and the North West Coast of America,' which was read Sept. 1, 1839. (*Ib. pp. 151–158.*)

The inclusion of the Chilian Finch, cited as further evidence of Townsend's carelessness or loss of memory, lacks conviction in view of Audubon's delegation to his friend Harris the selection from the Townsend collection of all skins considered of new species; it was no fault of the collector that the species later designated by Audubon as "*Fringilla mortoni*" became part of the purchase, especially as the latter expressed a desire for all of Townsend's notes "appertaining to species belonging to our fauna or otherwise." (*Auk,* XX, *1903, pp. 377–387.*) Moreover the locality given by Audubon, "Upper California," is doubtless a misquotation. Townsend apparently never set foot in California. Audubon in another instance credits him with taking a fine specimen of a male California Quail near Santa Barbara on March 6, 1837, at the time he was actually preparing to leave the Hawaiian Islands for Tahiti, and Nuttall, who really collected the year previous in the vicinity of that little California village, was safely in Boston!

I believe there can be no doubt that this modest, sport-loving Quaker ornithologist was the most conscientious of collectors, and that his time-dimmed records, with the corroboration of his older associate, Thomas Nuttall, leave little to be desired by way of substantiation.—Frank L. Burns, *Berwyn, Pa.*

(In the note referred to by Mr. Burns the writer had no thought of belittling Townsend for whose work he has the greatest regard. It would however be perfectly excusable for any ornithologist of that date or for many years after to confuse such puzzling birds as Petrels. And the point

should have been emphasized that Audubon was quite likely the one upon whom any criticism should rest for not ascertaining more exactly the history of the specimens in question. As a matter of fact the species are merely being removed to the hypothetical list at the end of the volume and when birds are recorded so far from their known habitat and are then never again seen within our range in more than one hundred years. I think most persons will agree that they had better be removed from the regular North American list and that in all probability some blunder had occurred in their original record.—W. S.)

Early Occurrence of the Gannet on the South Carolina Coast.—On the afternoon of October 2, 1930 the writer, in company with Mr. Peter Gething of Charleston, S. C., saw an adult Gannet (*Sula bassana*) from the beach of the Isle of Palms, Charleston County, S. C. The bird was watched for some time as it carried on its fishing in plain view from the beach, diving some half dozen times in the time we had it under observation, with and without 8x glasses. The sunlight was brilliant, bringing out the glistening white of the plumage with startling clearness.

The writer can find no record of such an early appearance of this species on the South Carolina coast, nor indeed for any part of the coast south of New England. Personally, it has never been observed in winter prior to December 13. Records for that month, together with others for January and February, prove it to be a winter visitor and it has been noted in the spring locally, as late as May 30. Mr. Arthur T. Wayne, in his 'Birds of South Carolina,' does not give any arrival dates and implies that the species is only a transient visitor, since he had not observed it in winter. Since the book was published however, the writer is under the impression that Mr. Wayne did see it in the winter months.

Research has shown that no arrival dates are given in 'The Birds of North Carolina' (Pearson and Brimley) for that coast. Gannets were seen by the writer on returning by boat from New York, October 30–31, 1930, after the A. O. U. meeting, as far south as Cape Fear, North Carolina. In 'Birds of the New York City Region' (Ludlow Griscom), October 5 seems to be the early date for the Gannet off that city. In 'Birds of New York' (Eaton)' October 5, is also given as the date for the coast of the State. In 'Life Histories of North American Petrels and Pelicans and Their Allies' (Bent) the early date for New York is given as October 5, again, Montauk Point being specified. In view of these dates, the occurrence of the Gannet off Charleston, S. C., on October 2, seems extraordinary, not only for the Carolina coast, but for most of the Atlantic seaboard.—Alexander Sprunt, Jr., *92 South Battery, Charleston, S. C.*

Cinnamon Teal (Querquedula cynoptera) in Michigan.—An adult female was taken in the Monroe Marshes, by an unknown hunter, on the opening day, September 16, 1930, and is now mounted in the collection of Dr. Hugo A. Freund of Detroit.

As far as I am able to find out, this is the first record of the bird in Michigan.—W. Bryant Tyrrell, *Cranbrook Institute of Science, Bloomfield Hills, Michigan.*

Breeding of the Blue-winged Teal in Pennsylvania.—As I have been unable to find any mention of the breeding of the Blue-winged Teal (*Querquedula discors*) in Pennsylvania the following note may be of interest.

Late in May, 1930 I was surprised to find at least two pairs of Blue-winged Teal loitering about the marshes at the head of Lake Ontelaunee, an artificial body of water some six miles north of Reading long after they, should have departed for their breeding grounds. They were evidently mated and had become quite tame and apparently at home, leading me to hope that they might remain and nest among the islands that dot the head of the lake.

By June the females had apparently disappeared, and only the males were seen on my frequent visits until, on the thirteenth, I saw a female proudly leading her brood of twelve downy young up one of the channels that intersect the marsh. These were certainly not more than a few days old, and swam in such a compact mass that I was compelled to count them many times before I could make sure of the actual number.

On June 29, great was my surprise to find another family of nine, almost half-grown, in the lower part of the lake, over a mile away from the first brood.

Several other interested persons and I visited both families frequently from then on, and watched them grow to maturity without a single loss; finally having the satisfaction, on August 3, of seeing both families in flight and well able to look out for themselves.

I was also interested to see that the Savannah Sparrows, which nested here last year, have evidently remained this season also, as several singing birds were present all through June and July, although no effort was made to find their nests.—Earl S. Poole, *Reading Public Museum.*

The Voice of the Blue-winged Teal and of the Shoveller.—Both the Blue-winged Teal (*Querquedula discors*) and the Shoveller (*Spatula clypeata*) are considered to be generally silent birds. Such is the impression given by Chapman and by Bent, and, in the case of the Shoveller, by Forbush. My experience with them during the 1930 spring migration at Lexington, Va., was quite the reverse, as I found them among the noisiest of the Ducks while feeding.

Blue-winged Teals were quite common here during April, 1930, on a small body of water known as Cameron's Pond. On almost every occasion when I observed them they gave the soft, lisping "peep" note constantly while feeding. Particularly, on April 3, when for a considerable time I watched four pairs, and on April 4, when there were four males and two females on this pond, they continued to utter this note as long as I watched them. They did not seem at these times to be at all disturbed.

Some of them also uttered a note, "ugh ugh ugh," a single note repeated several times is succession, usually three times. It sounded just like the grunt of a small pig. I could not tell whether this came from males or from females.

On April 3 there were two pairs of Shovellers on the pond. They were continuously vocal while feeding and while swimming about, and, I think, before they had observed me at my hiding place in the bushes. They uttered the note that is commonly transcribed as "woh woh," but which sounded to me more like "chugh chugh," with a decided nasal and querulous quality. When I finally exposed myself to view they took flight, uttering the same sound again and again as they circled overhead. In fact, long after I had turned my attention to the other ducks on the pond I was warned each time that they passed overhead by the note. The following day there was one male Shoveller at the pond. As he flew he uttered a note, quite different from the note just described, that sounded exactly like the words, "took took," sometimes used in describing the notes of this bird. But in all these cases the notes given by the Shovellers were in twos—"took took," or" chugh chugh"—rather than in threes, as commonly recorded.—J. J. Murray, *Lexington, Virginia.*

Rare Geese on the North Carolina Coast.—On November 14, 1930, Mr. E. C. Knight shot a Blue Goose (*Chen caerulescens*) at Corolla, N. C. on Currituck Sound, and another was obtained on the same waters on December 11 by Mr. W. F. Allen. Both were kindly presented to the Academy of Natural Sciences of Philadelphia while a specimen of the Lesser Snow Goose (*C. hyperboreus hyperboreus*) was received by the same institution from Mr. Charles Browne who obtained it on November 28, at Corolla. This bird measured as follows: Wing 15.90 ins. length of culmen 2.25 in.—Witmer Stone, *Academy of Natural Sciences of Philadelphia.*

Egrets at Cape Breton Island, N. S.—I would report the presence of a pair of Egrets in Cape Breton Island, Nova Scotia, in August last. These Egrets spent about one week in the South Gut of St. Anne's Bay, in the vicinity of some mud flats which are covered at high tide, some four or five miles from Englishtown.

I saw the first on the afternoon of August 18, was able to approach close to them and studied them for about an hour with a pair of powerful field glasses. Mrs. Grosvenor and others accompanied me. On returning to my summer home, Beinn Bhreagh, near Baddeck, that evening we compared our notes of the birds' appearance with pictorial and text descriptions as given in Forbush's 'Birds of Massachusetts,' and became fairly confident that our identification was correct.

In order to be absolutely certain, I returned the next morning with illustrations of the Egret in order to compare the picture with the birds, and fortunately found them again in the same place. The long yellow bill

of the birds that we observed and their size rendered our identification on this second visit absolutely certain.

As far as I know, Egrets have not been previously reported as far north as Cape Breton Island.

On the same afternoon that I first observed these Egrets I counted as many as 25 Great Blue Herons distributed within two or three miles along the mud flats on which the Egrets were seen. Undoubtedly the Egrets and at least some of these Blue Herons had been driven north by the excessive heat in the United States.—GILBERT GROSVENOR, *National Geographic Soc., Washington, D. C.*

Snowy Egret at Buckeye Lake, Ohio.—The summer of 1930 was marked in Ohio, as in other northern states of this section, by a great invasion of American Egrets and Little Blue Herons. Both species appeared at Buckeye Lake, in the central portion of the state, during the latter part of July. They reached their greatest numbers during the middle of August, when a maximum of 77 Little Blue Herons and 20 American Egrets were recorded in one day. All of the Little Blue Herons seen throughout the season were in the white phase. The majority of these had gone by the first of September. The numbers of American Egrets did not diminish until after the 15th of that month. The last American Egret recorded was on October 14.

On August 27 I found a single specimen of the Snowy Egret (*Egretta thula thula*) which I succeeded in collecting. It was feeding on a mud island in company with an American Egret. My attention was drawn to the bird by its very active movements. Indeed, the bird's behavior was the most conspicuous difference between it and the Little Blue Herons with which I later had an opportunity for comparison. In this specimen the toes and lower portion of the tarsi were a dull greenish-yellow. The upper third was black, this color extending down farther anteriorly than posteriorly. In the Little Blue Heron the toes and tarsi were of a uniform greenish-yellow. This difference in color was inconspicuous. The coloration of the bill was also similar to that of the immature Little Blue Heron; the lores were, perhaps, a trifle more yellowish. There was, of course, no trace of slate on the primaries. An examination of a great many white Herons, both here and elsewhere in the state, revealed no other Snowy Egrets.

The Snowy Egret appears to be quite rare in Ohio. I know of no recent records although several were recorded over thirty years ago. There is evidence that some of these were immature Little Blue Herons.—MILTON B. TRAUTMAN, *Ohio State Museum.*

Little Blue Heron at Radford, Va.—One day during the early part of August while I was crossing New River near Radford, Virginia, I observed six birds of the size and general characteristics of the immature Little Blue Heron. They were standing in shallow water on the shore of

a wooded island about seven feet distant from the ferry and the binoculars which I was using were not powerful to see the coloring of the legs. The birds created a great deal of interest locally and as no one could be found who had seen anything like them in the vicinity, this must have been the first appearance for a number of years. I was told in the Autumn by the ferryman that he had counted as many as nineteen in the flock and that they had stayed until the end of the summer without molestation.—H. S. SLOCUM, *Bluefield, W. Va.*

White Herons near Hartstown, Crawford Co., Pa.—On July 8, 1930, at the south end of Pymatuning Swamp, Crawford Co., Pa., I saw two Egrets (*Casmerodius albus egretta*) I passed this swamp nearly every day and made many special trips thus affording me an opportunity to study and observe the birds. On August 1, as I was passing the marsh I noticed five white birds two large and three small quite a distance up the swamp but was unable to determine what the smaller birds were. Not until the 16th. was I able to observe them at close range. There were then but two and I was able to approach within one hundred feet of them. One was a Little Blue Heron (*Florida caerulea*) and the other a Snowy Egret (*Egretta thula thula*). The light was bright and with my 8x binoculars I could compare the two birds to the best advantage. On August 26 Mr. Tom Kuhn and I found the three small birds together and identified two as Little Blues and one as the Snowy Egret. On the 28th we found all three species feeding together just north of what is known as Dollar Lake. The large Egrets resented the presence of the smaller birds and would chase them for a short distance and then resume feeding. I saw them last on September 10.

The excessive dryness of the country drove the water birds to seek haven in the swamp in large numbers. The following is a list of the species observed in the swamp August 16–26 with the greatest number seen at one time:

Black Duck (6)
Blue-winged Teal (9)
American Bittern (7)
Least Bittern (1)
Great Blue Heron (5)
American Egret (2)
Snowy Egret (1)
Little Blue Heron (2)
Green Heron (5)
King Rail (1 ad. 2 yng.)
Virginia Rail (1)
Wilson's Snipe (5)
Florida Gallinule (23 including young)
Coot
Pectoral Sandpiper (4)
Least Sandpiper (7)
Semipalmated Sandpiper (5)
Greater Yellow-legs (2)
Solitary Sandpiper (1)
Spotted Sandpiper (2)
Killdeer (many)
Semipalmated Sandpiper (2)
Ruddy Turnstone (1)

Also a single Red-backed Sandpiper on Conneaut Lake on November 2.—STANLEY J. SEIPLE, *Greenville, Pa.*

Little Blue Herons (Florida caerulea) and Egret (Casmerodius egretta) in Michigan.—On August 18, 1930, W. B. Purdy of Milford, Michigan, informed me that he had seen six White Herons north and east of Mt. Clemens, Michigan, in a swamp along the road. The following day I visited the locality and saw only five, which were identified as immature Little Blue Herons. While talking with a resident of the region, he informed me that about fifteen of the birds had been in the vicinity for about two weeks.

One was collected on August 20. On August 24 we spent most of the morning trying to photograph them, but they were so wary that it was impossible to get close enough to them with only a ten inch lense. Fourteen Little Blue Herons were seen at one time.

On August 21 the game warden reported that he had seen White Herons on two nearby lakes. A search around both lakes on August 26 revealed twelve birds on Pontiac Lake, but none on the other. A farmer, whose property bordered the end of the lake where the birds stayed, informed me that the birds had been there about a month, and that some of the same birds were there last year. Of the twelve birds seen, five were Egrets and seven were immature Little Blue Herons, in company with several Great Blue Herons, many immature Black-crowned Night Herons, and a few Green Herons.

On September 1 some rather indistinct photographs were secured with a fourteen inch telescopic lense. On September 14 only one Egret was seen, though the game warden reported about fifteen on the fifteenth of September.

Again on September 19 W. B. Purdy reported seven Egrets at a pond about a half mile from Milford.

We visited the spot on the 11th and again saw them. Two days later we again visited the pond, but it was then dry, and the birds had gone elsewhere.

Eighteen were later reported to be on an estate about seven miles from Milford, but I was unable to obtain permission to go on the grounds.—W. Bryant Tyrrell, *Cranbrook Institute of Science, Bloomfield Hills, Michigan.*

White Herons at Lincoln, Mass.—On August 25, 1930, I surprised a flock of sixteen White Herons on the western shore of Sandy Pond at Lincoln, Mass., just opposite the small wooded island. They scattered across the water in all directions, singly or in twos or threes but later I saw a number of them in a large tree near the edge of the water on the de Cordova estate near the boat house. The two or three which I was able to see clearly had black legs. Some days later I again visited the pond, but the Herons had disappeared.—Austin H. Clark, *U. S. National Museum.*

Notes on the occurrence of Ajaia ajaja and some other Species in

Florida.—I was much interested in Mr. Thomas E. Winecoff's account, in the October issue of 'The Auk,' of the relative abundance of Roseate Spoonbill at Marco, Florida. I must confess that after a somewhat hasty search of recent 'Auks' (which collectively appear to contain as much information on Florida birds as is, at present, available), preliminary to an unexpected trip to Florida in August 1929, I was quite inclined to share Mr. Winecoff's impression that the Spoonbill is now a rare bird on the Florida peninsula. For instance, Mr. Donald Nicholson, the veteran collector and ornithologist of Orlando, refers to the species as a veritable "will-o-the-wisp" though I afterwards learned that this phrase characterized his personal experience with the birds rather than the species' actual status on the peninsula.

It so happened that during the latter part of August 1929, Mr. Irving Kassoy, my brother Richard and I had a week at our disposal in Florida. We spent our time driving down the west coast to Fort Meyers, thence across the Tamiami Trail and down the keys to Key West, and back on the east coast to Lake Okeechobee, Orlando and so north. We had resolved to "see as much of Florida" as possible in that short time and consequently our trip was rather hurried,—we covered about 2300 miles during the week and "birding" was correspondingly sketchy.

On August 22, we developed engine trouble on the Trail and stopped at a filling-station to have the condition remedied; the station operated in conjunction with that of the South-west Mounted Police (called the "Palm Hammock station") at a point about twenty miles west of Everglade, the Barron Collier development, some distance below Fort Meyers. While repairs were under way, we engaged several of the men about the place, in a conversation about birds. Incidentally, we were frequently impressed with the remarkable interest in, and knowledge of the local bird-life which the average Floridian seems to possess. These gentlemen were, by no means, exceptions. It developed that they had never heard of the Spoonbill but knew the "Pink Curlew" well, and assured us that it was merely a matter of "running down towards the Gulf" to see some of the birds. This we did without delay and after about an hour of rough going, we arrived at one of the numerous estuaries surrounding the Gulf, just before dark, and to our great pleasure, saw an unmistakable Spoonbill on an exposed flat some distance from us, feeding near a few Little Blue Herons. We returned to the spot early next morning and saw two Spoonbills in flight, on the edge of a flock of White Ibises. Unfortunately time did not permit a more extended investigation of the locality but the local inhabitants assured us that the species is, by no means, rare in and near what is now known as Collier County, Florida, and that in spring the birds are frequently present in large numbers, in this vicinity. There seems little reason to question these statements, particularly in view of personal verification of the proper identification of the birds.

On August 21, a flock of six Swallow-tailed Kites was observed in the

Everglades, which happens to be somewhat later than the departure date for the species, as given in Bailey's book of Florida birds. On the 27th, an Upland Plover was flushed from the Kissimmee Prairie region, which, the same author lists as rare in the state. On August 30, a fine adult Sooty Tern was observed off Hatteras, N. C. which seems worthy of record here.—JOHN F. KUERZI, *978 Woodycrest Ave., New York City.*

Columba squamosa at Key West.—That veteran ornithologist J. W. Atkins, whose residence at Key West, Florida during the past forty odd years has resulted in securing numerous records of the occurrence of West Indian birds from that islet, has sent to the American Museum of Natural History the head of a specimen of *Columba squamosa* which was shot on the Key West Lighthouse reservation May 6, 1929.—FRANK M. CHAPMAN, *American Museum of Natural History.*

Note on the Passenger Pigeon.—The following is an extract from a letter written to me by Philip B. Woodworth of Chicago, October 14, 1930, describing his early recollection of the Pigeons at Saginaw Bay, Michigan. The fire referred to occurred in the autumn and the birds being widely scattered at that time could hardly have been destroyed by the flames.

"Passed through Saginaw in 1867 (2 years old). We settled near the mouth of the Pigeon River on Saginaw Bay, and the famous Pigeon roost was on our land. Saw Pigeons knocked down with brush, gathered into barrels and presented to boat crews at the lumber dock. As a child I fed and played with wing hurt Pigeons on the floor of our home. In my opinion the forest fire of 1871 was the beginning of the end. Saw some stragglers at the old roost in 1885 and 1886. Other game birds, such as Wild Turkeys, were quite common up to the second fire in 1881."—W. B. MERSHON, *Saginaw, Michigan.*

Black Vulture (Coragyps urubu) in New Jersey.—On May 22, 1930, driving south through the Pine Barrens to Vineland, N. J., large numbers of Turkey Vultures (*Cathartes aura septentrionalis*) were seen circling over the burnt areas devastated by widespread spring fires. The birds evidently found the carcasses of mammals killed by the blaze an attraction.

Near New Egypt, I noticed one Vulture with a smaller span than the others near at hand. Its wings were shorter and broad for their length and on the outer half of the wing was an area or patch of whitish, showing both above and below. The tail appeared shorter, not extending as far beyond the rear "wing line," this being very noticeable as the bird soared overhead. It soared frequently but when flying its wing beats were more rapid than those of the Turkey Vulture. The wings when the bird soared, while curved upward slightly at the tip, were not lifted as high as in the soaring Turkey Vulture or in the Marsh Hawk.

I watched this bird for some time at rather close range and in varying light. At times the under parts seemed lighter than the upper surface

and at other angles the different pattern of the under parts was evident, lacking the diagonal line of demarkation which divides the darker and lighter areas in the Turkey Vulture.

The bird I feel confident was a Black Vulture (*Coragyps urubu urubu*). —CHARLES A. URNER, *Elizabeth, N. J.*

The Black Vulture in the Tennessee Mountains.—On August 28, 1930, while on an automobile trip, I saw four Black Vultures (*Coragyps urubu urubu*) with a flock of some twenty-five Turkey Vultures at a point six miles north of Mountain City, Johnston County, Tenn. Mountain City is in the Unaka Mts., in the extreme northeastern corner of the state, and has an elevation of 2427 feet. So far as I know, the Black Vulture has not heretofore been reported from this region. It seems now to be getting established throughout the southern Appalachians.—J. J. MURRAY, *Lexington, Virginia.*

Marsh Hawk vs. Kingfisher.—During the past five years several notes have been published in 'The Auk' describing the pursuit and attack of Kingfishers by Sharp-shinned and Cooper's Hawks.

On Sept. 6, 1929 at Hebron, N. H., from a concealed position on the edge of a marsh and inlet of Newfound Lake, I had an excellent opportunity to watch at close range the spirited pursuit of a Kingfisher by a Marsh Hawk.

A Kingfisher had just emerged from the water, after an apparently vain attempt to capture food, and was giving his customary 'rattle' when a female Marsh Hawk, that was patrolling the edge of the marsh, turned from its course and flew after the Kingfisher. The Hawk rapidly overtook the Kingfisher and swooped down on it from behind only to miss by a narrow margin as the latter dodged at the last possible moment. The pursuit continued and covered an erratic course of about 200 yards over open water during which the Hawk made at least five attempts to strike the Kingfisher before finally giving up the chase. The Kingfisher did not seek refuge in the water beneath but rattled excitedly and escaped each attack by a sudden last minute change of direction which the Marsh Hawk was unable to follow.

It seems probable that the Kingfisher, because of its conspicuous markings and its habit of flying in open country, is an easily seen and tempting target for various Hawks.—KEBLE B. PERINE, *West Newton, Mass.*

Paired Ovaries in Hawks.—Since recording the finding of paired ovaries in *Circus hudsonius* (Auk, Vol. XLV, No. 1, pp. 98–99), the writer has had opportunity to examine a number of native Hawks and has noted this condition in six species representing four genera of North American Hawks. A specimen of *C. hudsonius*, other than the record mentioned above, has been examined which possessed paired ovaries.

Examination of approximately thirty females of *Accipiter velox* indicate

that this anatomical feature is usual rather than exceptional in that species. Although fewer specimens of *Accipiter cooperi* have been examined, it would appear that this condition is also normal with it.

The following additional species have been examined and found to possess paired ovaries, the record in each case being based on an individual specimen,—*Buteo borealis*, *Buteo platypterus* and *Falco sparverius*.—L. L. SNYDER, *Royal Ontario Museum of Zoology, Toronto.*

Golden Eagle Captured in Georgia.—On Nov. 6, 1930, I examined carefully a live Eagle in the possession of Dr. W. A. Clarke of this city and was thrilled to discover it to be the Golden (*Aquila chrysaetos*) instead of an immature Bald Eagle as I had expected. Dr. Clarke stated that it was captured by him and Mr. Pearl Aycock on November 1 by the Oconee River about twenty miles from Athens in Oglethorpe County, Georgia. He stated that it was found tangled up in a muscadine vine. The bird was fastened by a rope and was in his garage allowing a close approach so that all of the characteristics could be plainly seen. The color of the basal half or more of tail and other points lead me to believe that it is an immature bird. It was not especially pugnaceous. Although there are a few records of this Eagle from Alabama, South Carolina and Florida and a memorandum from Georgia, this is the only definite account of an actual capture in Georgia that I am able to find.—EARLE R. GREENE, *642 Orme Circle, Atlanta, Ga.*

The Golden Eagle (Aquila chrysaetos) in Cheshire County, New Hampshire.—On November 14, 1930, in West Chesterfield, N. H., the first specimen of the Golden Eagle to be taken in the state since October 9, 1899, so far as I can learn, was shot by Mrs. Clinton Davis. The Davis hennery had been diminishing all fall from an unknown cause, and when, on returning home on the afternoon of the above date, Mrs. Davis heard a commotion among her fowls and saw the Eagle among them, she secured the bird with the first shot she ever fired from a gun. She took the bird to the Game Warden. It was found to have a wing spread of eighty-four inches. The golden color on the head was very clearly defined. The specimen is being mounted for the State Department of Fisheries and Game. I can find no record of the species having been taken previously in the county. Allen gives as the last breeding record for the state (A List of the Birds of New Hampshire 1903) "that of C. A. Hawes who states that on July 6, 1876, he observed at White Horse Ledge, North Conway,—among the White Mountains—a nest containing two young, partly fledged . . . On visiting the locality the following year, he found that the birds were no longer there." In recent letters, neither Drs. John B. May nor Glover M. Allen can give me a positive record for the bird in the state since 1900. There are, however, some sight records, I believe, but the difficulty of identifying the bird in the field from the immature Bald Eagle is so great, that little weight can be placed upon such records.—LEWIS O. SHELLEY, *East Westmoreland, N. H.*

Attacks by Screech Owls.—A recent note in 'Science' (LXXII, 91, July 25, 1930) by Chapman tells of an experience of his in Mississippi in 1915 when he was attacked and struck by a Screech Owl. He also quotes a similar experience by Reese in West Virginia. This reminded me of an episode of my boyhood in Milton, Massachusetts. On looking back in my field notes I find that this occurred on Milton Hill, June 26, 1904. I was standing under some large maples in the early dusk looking at a row of eight young Screech Owls on a limb some forty feet away, when suddenly something struck the back of my head; it was only a light glancing blow, remarkably silent, and accompanied by a slight fanning from beating wings. I was so startled that I did not see the bird the first time, but a minute or so later, when the performance was repeated, I saw him and dodged. He was quite persistent, and kept swooping at me until I left the vicinity of the young birds. Another evening the same act was repeated in the same place. I have never had any other bird actually strike me, even in protecting its young, although several species of Terns, Gulls and Hawks have come so close to me that I could feel the wind of their wings on my face.—Stanley Cobb, *Milton, Massachusetts.*

Burrowing Owls in Illinois.—During the middle of March, 1930, one of my students reported seeing a funny little Owl rise from a Woodchuck's hole and fly a short distance away. Before I could plan a trip to make a sight identification, the lad shot the bird. However, his cat tore the specimen to pieces, and all that was returned to me for identification purposes was a portion of skin with a few feathers on it, one of the long slender tarsi, and also a part of the head. As poor as I found this material, I felt positive that the specimen had been a Western Burrowing Owl (*Speotypo cunicularia hypogaea*). However, I hesitated to publish a record of it, and merely made a notebook notation.

On April 14, Mr. M. E. Fenton, of Hamilton, Illinois, while walking along the base of the bluffs overlooking the Mississippi River near Hamilton shot another specimen which flew from a Woodchuck's hole. He sent it to Mr. Earl Lambert, Professor of Biology at Carthage College, who identified it as a Burrowing Owl. Later after the specimen was mounted, I examined it carefully, and found it to be a specimen of Burrowing Owl.

These I believe are the first records of this bird reported from the state of Illinois. Whether the appearance of two of these birds is due to the very dry season, or to the numerous nesting sites, dug by an increasing number of groundhogs is difficult to say. However, I shall search the vicinity of Hamilton, Illinois, with increased interest to determine whether the Burrowing Owl has established itself in that neighborhood or the two specimens were merely strays.—T. E. Musselman, *Quincy, Illinois.*

The Winter Range of the Chimney Swift (Chaetura pelagica).—In identifying birds for cataloging, I have discovered that we have in the American Museum three Middle American specimens of the Chimney

Swift, and as a contribution to our knowledge of the 'Winter' range of this species I place them on record as follows:

No. 106223, Rio Givicia, Oaxaca, Mex., ♀, March 21, 1906; J. H. Batty (wing, 127 mm.); No. 248243, Cocoplum, Boca del Toro, W. Pan., ♀ (ovaries not enlarged), October 28, 1927; R. R. Benson (wing, 130 mm.); No. 248224, Cocoplum, Boca del Toro, W. Pan., ♂ (testes not enlarged), October 28, 1927; R. R. Benson (wing, 127 mm.).

The Batty specimen is, I believe, the third known from Mexico, the preceding records being Jalapa,[1] one, and Puebla,[2] one. Hartert (l. c.) also lists four specimens taken by Gaumer on Cozumel Island in April, and one from "Guatemala." The authenticity of the latter record, however, has been questioned. It is based on a specimen from the Tweedale Collection, labeled merely "Guatemala."

Wenzel's records from El Zapote, Guatemala,[3] have been shown by Stresemann (l. c., 1929) to be based on *Chaetura vauxi*.

Apparently, therefore, there are no authentic records of the Chimney Swift from Central America, and our two specimens from the Caribbean coast of western Panama extend the known 'winter' range of the species somewhat over a thousand miles.

Its absence from the large collections that have been made in Costa Rica and, prior to 1927, in western Panama, induced me recently to express a belief that the Chimney Swift did not winter south of Costa Rica;[4] but its occurrence on the Caribbean coast of Panama, at a date before the fall migration of the species is completed, makes it not improbable that it may continue its journey to South America. This theory is supported by the fact that from October 24 to November 12, Mr. Benson collected no less than 31 species of North American migrants at Cocoplum as follows:

Marsh Hawk, 1, Oct. 26.
Broad-winged Hawk, 3, Oct. 31–Nov. 10.
Duck Hawk, 2, Oct. 31, Nov. 8.
Yellow-billed Cuckoo, 3, Oct. 25–28.
Belted Kingfisher, 2, Nov. 2.
Kingbird, 1, Oct. 26.
Crested Flycatcher (*Myiarchus crinitus crinitus*), 1, Oct. 29.
Olive-sided Flycatcher, 1, Nov. 2.
Wood Pewee, 14, Oct. 25–Nov. 5.
Alder Flycatcher, 3, Oct. 28–30.
Orchard Oriole, 1, Oct. 25.
Indigo Bunting, 1, Nov. 5.
Dickcissel, 3, Oct. 27–Nov. 3.
Summer Tanager, 4, Nov. 1–8.

[1] Hartert, Cat. Bds. B. M., XVI, 1892, p. 481.
[2] Cory, Cat. Bds. Ams., II, 1, 1918, p. 138.
[3] Orn. Monatsb., XXXVI, 1928, p. 76; XXXVII, 1929, p. 115.
[4] Bird-Lore, 1930, p. 370.

Barn Swallow, 2, Oct. 26.
Red-eyed Vireo, 3, Oct. 26–Nov. 5.
Philadelphia Vireo, 1, Oct. 29.
Prothonotary Warbler, 5, Oct. 26–Nov. 10.
Golden-winged Warbler, 1, Oct. 28.
Tennessee Warbler, 3, Oct. 30–Nov. 8.
Yellow Warbler, 10, Oct. 24–Nov. 10.
Myrtle Warbler, 3, Nov. 7–12.
Magnolia Warbler, 1, Nov. 5.
Chestnut-sided Warbler, 1, Nov. 3.
Bay-breasted Warbler, 5, Oct. 26–31.
Blackburnian Warbler, 1, Oct. 29.
Water-Thrush, 3, Oct. 24–Nov. 9.
Mourning Warbler, 3, Oct. 25–29.
Catbird, 12, Oct. 24–Nov. 5.
Gray-cheeked Thrush, 2, Oct. 31–Nov. 1.
Olive-backed Thrush, 2, Oct. 29–Nov. 7.

All but six of the species above recorded are known to reach South America, a further indication that the Chimney Swifts formed part of a stream of southbound migrants. If we may assume that they winter in a forested, rather than an arid region it is not improbable that they were bound for Amazonia, where the presence as permanent residents of five species of *Chaetura* shows that the region offers a favorable habitat for birds of this genus. From at least two of the Brazilian species, *pelagica* could not certainly be distinguished in the air. Sight identification, therefore, is out of the question, and until a specimen is secured we shall not know where the Chimney Swift winters. But, as every collector of birds in tropical America knows, to see a Swift is one thing, to get it quite another. Native collectors are not willing to expend the ammunition required to capture Swifts, and even visiting naturalists secure comparatively few. With our attention directed toward Amazonia as the possible winter quarters of the North American species it may be long, therefore, before our theory is confirmed by specimens.—Frank M. Chapman, *American Museum of of Natural History, New York City.*

The Chuck-wills-widow in Maryland.—At dusk on the evening of June 28, 1930, near North Beach, Maryland, we heard the call of the Chuck-wills-widow (*Antrostomus carolinensis*) from a dense growth of sweet gum a short distance back of the shore of Chesapeake Bay, and approached until finally we were within 75 yards of the bird. We listened for half an hour or more to the unmistakable notes, the song being interrupted at intervals as though the bird was feeding. The low *chuck* at the beginning of the song was heard clearly. From the date it may be supposed that this individual was on its breeding grounds. Careful search was made the following morning but the bird could not be located, the area where it had been heard being difficult of penetration.—A. Wetmore and F. C. Lincoln, *Washington, D. C.*

A Red-headed Woodpecker (Melanerpes erthrocephalus) Destroys Its Own Eggs.—Preceding June 16, 1930, Red-headed Woodpeckers were noted carrying food to their nesting tree. Accordingly, assuming that the young were hatched, and determined to obtain them for banding, the writer, armed with banding tools and a saw to be used to provide an entrance to the cavity (with the use of a saw the artificial entrance can be replaced, leaving the nest practically unchanged in appearance) ascended the tree and opened the cavity, amidst protests from the adult birds. Much to my surprise and exasperation the eggs were not hatched. After rearranging the nest I retired to the ground permitting the resumption of incubation duties.

I had no sooner descended the tree and withdrawn to a distance of some twenty feet when one of the adult birds appeared and alighted on the nest stub at the orifice to the nest. After a critical examination of the exterior it ventured into the nest cavity. Presently it reappeared at the opening with an egg in its mouth. This was taken and lodged in the top of a fence stake ten rods from the nest. This performance was repeated until the entire clutch of three eggs was deposited in fence stakes at distances varying from ten to twenty rods from the nesting tree. The bird then flew to a nearby feeding station and proceded to feed on corn placed there for its use. A call to other duties terminated observations at this time.

The site was visited one hour later to find the Red-head engaged in eating the shell from the eggs. Incubation was found to be nearly complete.

An explanation of the reason for this drastic action would seem to be extremely complex, involving an essential understanding of bird psychology. While possibly revealing nothing of intrinsic value it is interesting to speculate as to the possible factors that moved this bird to destroy its own possessions: was it the result of a spasmodic or convulsive impulse or did the bird reason that I was about to destroy its eggs, and decide to destroy them first, thus, prohibiting me from "getting the start of it"? Possibly these suggestions are attributing too anthropomorphic qualities which obviously would be unwarranted.—Paul A. Stewart, *Leetonia, Ohio.*

Euscarthmornis rufigularis (Cabanis) Rediscovered.—This well-marked species was described by Cabanis in 1878 from a pair of birds taken at Monterico, Dept. Ayacucho, Peru, by Jelski. The types are now in the Warsaw Museum and were examined by Dr. C. E. Hellmayr during the preparation of his volume on the Tyrannidae for the 'Catalogue of the Birds of the Americas.'

Since the taking of the types by Jelski, no other specimens have been recorded. On January 4, 1930, while collecting at San Juan de Perene, Chanchamayo, Peru, for the Academy of Natural Sciences of Philadelphia, I took an adult male of this rare bird. It was shot in virgin forest, rather high up in a tree, at an elevation of about 4,500 feet. No others were seen.—M. A. Carriker, Jr., *Academy of Natural Sciences, Philadelphia.*

An Arkansas Kingbird and a Blue Grosbeak near Toledo, Ohio.—On September 14, 1930, Miss Marjory Dean and the writer saw an Arkansas Kingbird (*Tyrannus verticalis*) near Little Cedar Point, Lucas County, Ohio. The bird was examined closely in bright sunlight at a distance of thirty feet, both while perched and in flight. Miss Dean was familiar with this species having observed it often on western trips. In his 'Birds of Massachusetts' Mr. Forbush lists twenty occurrences of the Arkansas Kingbird in the New England States—all near the ocean. As the natural route from the west would be along the shores of Lakes Erie and Ontario, I have been watching for this Flycatcher for several years.

In the same locality, an immature Blue Grosbeak (*Guiraca caerulea caerulea*) was seen on August 17, 1930. As it showed no trace of blue, it probably was a female. The bird was quite tame, and remained almost motionless while I wrote a description of it on the spot. The call note was a sharp "check." My attention was first attracted by the fact that although the bird was unmistakably a Grosbeak, it was obviously neither a Cardinal nor Rose-breasted, our two common species.—Louis W. Campbell, *Toledo, Ohio.*

Two Species of Birds New to Louisiana.—During the field trip of the Chicago Academy of Sciences to Louisiana, in May and June, 1930, two species of birds were collected which seem to be new to the state list. A female Derby Flycatcher (*Pitangus sulphuratus derbianus*) was taken at Chenier au Tigre on May 23, and three male Seaside Sparrows from small islands off the east coast of Louisiana, collected June 9, and 11, appear to be *Passerbulus maritimus howelli*. These specimens were submitted to Mr. James L. Peters for examination. All the Seaside Sparrows taken west of the Mississippi River proved to be *fisheri*.—Earl G. Wright and Alfred M. Bailey, *The Chicago Academy of Sciences.*

Notes on the Twilight Songs of the Scissor-tailed and Crested Flycatchers.—On June 2, 1929, near Cashion, Oklahoma, I had the privilege of hearing the "twilight song" of a Scissor-tailed Flycatcher nesting next the house in which I was staying. At 5.01 A.M. this bird began to shout *pup-pup-pup-pup-pup-pup-perlêep* 16 times a minute for about four minutes. Then for three minutes nothing was heard but a few *pups*. At 5.07 he began again with a new note—*pup-pup-pup-peróo*, lower and less loud than the first phrase, the number of *pups* varying from none to three, the most common number being two. A minute later he started to fly about, but kept up a continuous chatter of *pup-peróo* till 5.12.

He and his mate then flew away, but were back at the nest at 5.18 with loud *pups*. At 5.27 just as the sun was rising over the prairie, the female sat on the barbed wire fence with wings held straight out from her body and her tail spread to its furthest extent. Later the male assumed this same attitude, at the same time saying *peelyer per*. At 5.42 he returned

to the nest and gave a last *pup-pup-perôo.* The nest was 20 feet up in a locust, constructed mostly of cotton; a small nephew kindly climbed the tree and reported one egg.

The *pup-pup-pup-pup-pup-pup-perléep* was about one second long; intervals between beginnings of phrases varied from 3.5 to 4 seconds. The *pups* were uttered rapidly, giving the effect of a stutter; the emphasis was on the *perléep.* This note I have heard given on other occasions, but I do not remember having heard the *pup-pup-perôo* before. The utterance of such a large number of these two phrases in succession is unlike any daytime performance of *Muscivora forficata* in my experience. It was a matter of regret that I was unable to make any further observations on the early morning song of this fine bird.

On the same trip to Oklahoma I was fortunate in hearing the twilight songs of four different Crested Flycatchers, one of them on three successive mornings. F. H. Allen (Nat. Hist. 1922, XXII, p. 236) describes it as "one of the most leisurely songs I know for there is a rest of two seconds or more after each phrase." To him the song sounded like *coodle, queedle;* to me it consists of a low *wheeyer,* a pause, then a high *wheeyer* over and over again.

The first bird was heard on a rainy morning May 30 at Snail Brook near Norman—the very same place where I first became acquainted with the song nine years before (Wilson Bull. 1928, XL, p. 255). This song began at 4.50 and lasted until 5.18. The bird was restless, continually flying to a new perch and giving the most irregular song I have ever heard from *Myiarchus crinitus.* It was unusually fast at first; the rate between 5.00 and 5.05 was 35 notes in three different minutes, at 5.06, 25 notes; at 5.13, 23. It also showed more exceptions to the regular alternation of high and low notes than did the other songs, for there were no less than 30 irregularities in six recorded minutes. Intervals between beginnings of notes varied between 1.0, 1.5, 1.8 and 2.8 seconds.

The other songs were recorded at Camp Boulder in the Wichita National Reserve from June 4 to 6; at 4.50 A.M. on the first date three birds were singing within earshot of our tent. With two I recorded only the very ends of their songs; both of these stopped at 5.27. One on June 5 sang the following number of notes a minute from 5.24 to 5.26: 15, 18 and 21, the three minutes showing 7 irregularities. The other bird on June 6 sang 22 and 23 times a minute between 5.20 and 5.21, the two minutes yielding 4 irregularities.

The fourth bird had the longest song of all; on June 4 he was still singing at 5.25, although the other two had stopped; the next day he sang until 5.33. The first day he sang in one spot from 4.55 till 5.10, when he stopped, flew across the creek and began again at once, at 5.17 he uttered a few *wheeps,* flew again, gave three notes of the song, then more *wheeps,* then recommenced the song and was still at it at 5.25 when I had to leave. The number of notes per minute in five minutes between 4.57 and 5.05 were

30, 31, 30, 31 and 29; at 5.11, 28; 5.13, 29; 5.14, 26; 5.19, 29; 5.22, 27. On June 5 from 5.13 to 5.16 he sang 34, 30 and 33 times a minute, between 5.19 and 5.20 30 and 30. At 5.29 he sang 19 notes and at 5.31 only 14; at 5.33 after 5 notes there was a great outburst of *pee whee-pees* which signalized the end of the song. The next day I recorded only two minutes—30 phrases at 5.10, 31 at 5.15.

Ten recorded minutes with this last bird yielded 18 irregularities. All these individuals at times sang two high notes or two low notes together; these were the only irregularities noted with the last bird, but the Snail Brook Flycatcher twice sang three low notes in succession, and the other two indulged in three high notes occasionally. No recorded minute with any of these birds showed a perfect alternation of high and low notes.

The length of these songs surprised me, one lasting 28 minutes and two others more than 35. The typical rate appears to be from 28 to 30 notes a minute, but all four of these birds sang slowly near the end, a change not due to pauses, but merely to a more deliberate rate. A Crested Flycatcher in Arkansas on June 11, 1927 after 8 minutes of the usual song proceeded with great irregularity, using mostly low notes at long intervals for at least 8 more minutes; but the five Oklahoma birds of this species on whose songs I have made some observations sang both phrases with fair regularity to a definite end and after that indulged in no more song notes.—MARGARET M. NICE, *Amherst, Massachusetts.*

Bobolink (Dolichonyx oryzivorus) in Western Montana.—On June 9, 1928, three Bobolinks were identified by Dr. Dana J. Leffingwell, in the Frenchtown Valley about twelve miles northwest of Missoula, Montana. They were observed at close range in a wet alfalfa meadow, apparently feeding. The flight song and the sharp, metalic call note were heard.

A lone bird had been observed the preceding spring in May by Mrs. Samuel Maclay, in the Bitter Root Valley, twelve miles south of Missoula. —MRS. DANA J. LEFFINGWELL, *Pullman, Washington.*

Behaviour of Rusty Blackbird.—About noon, November 6, 1930, in company with my friend Mr. J. Frank Duncan I was walking through a tract of partly wooded pasture land belonging to his estate. A flock of fifty or more Rusty Blackbirds (*Euphagus carolinus*) were feeding on the ground farther up the hill in the direction in which we were walking. Suddenly there was a great commotion among the Blackbirds and instantly one of them darted directly toward us, closely pursued by a Sharp-shinned Hawk (*Accipiter velox*). Mr. Duncan and I were side by side and with a space of about two feet between us. In an incredibly short time the Blackbird darted between us screaming at the top of his voice, while the Hawk, who evidently did not see us until within ten feet, frantically checked himself, noticeably fanning our faces, and when within two feet of us swerved to one side and made haste into the woods. When the

Hawk began to check his speed he was within a foot of the Blackbird, and with both feet stretched forward to grasp it. At his closest he was within two feet of our faces for a split second and if we had not been so startled either of us might have caught him in our hands.

The question that arises in my mind is, did the Blackbird deliberately fly toward us, thinking that the Hawk would not knowingly approach us? Without question he saved his life by darting between us. Did his instinct tell him that safety lay in our direction, or was it mere accident that he chose that course instead of any other point of the compass? Is such action common with birds pursued by predators?—JOHN B. LEWIS, *Amelia, Va.*

Late Pine Grosbeaks (Pinicola enucleator leucura).—On March 14, 1930 three birds were seen feeding on the buds of spruce (*Picea canadensis*) and tamarack (*Larix americana*) at Cranbrook, Michigan. Two were collected, a male and a female, both in immature plumage.—W. BRYANT TYRRELL, *Cranbrook Institute of Science, Bloomfield Hills, Michigan.*

The Sharp-tailed Sparrow at Chesapeake Beach, Md.—During a number of years of field work in the Washington region, it has been often remarked that certain marshy meadows bordering Fishing Creek above the station at Chesapeake Beach, Maryland, where a little line of railroad comes down to Chesapeake Bay, seemed suitable for the Sharp-tailed Sparrow. For various reasons this area was not explored carefully until June 30, 1929 when a colony of the birds was located immediately, and individuals have been seen regularly on subsequent visits, both during the summer of 1929 and 1930. Several specimens have been collected, leaving no doubt as to identity. The colony has consisted of between ten and twenty pairs, the exact number being difficult to ascertain because of the movement of the birds over the area concerned, individuals flying ahead as one walks through the grass. The marshes in question are saline in character being affected by tide-water coming through the channel of Fishing Creek from Chesapeake Bay distant about half a mile away. In an air-line this area is a little less than thirty-five miles from the central part of Washington and is the nearest point to the city at which the Sharp-tailed Sparrow is known to breed.—A. WETMORE AND F. C. LINCOLN, *Washington, D. C.*

Clay-colored Sparrow on Cape Cod.—On September 20, 1930, two Clay-colored Sparrows (*Spizella pallida*) both adult males in autumn plumage, were taken in the banding traps at this station. The first one appeared at 10 A.M., alone in a government-style Sparrow trap set in an open asparagus field and baited with golden millet, while the second bird, accompanied by two Chipping Sparrows, entered the same trap at 2 P.M. Inasmuch as they comprise the first records of this species for New England, I made skins of both birds and deposited them in the collections of the Boston Society of Natural History.

A third individual of the same species visited the station October 11, 1930. I took it from a trap at 9 A. M., banded and released it. It repeated at 5 that afternoon, and twice the following day, after which it disappeared.

On November 3 still another individual came into the traps and was banded and released.

The occurrence of these later birds might be interpreted as indicating that, instead of being a rare accidental, the species has always been a sporadic visitor to New England in the post-nuptial season, but has hitherto remained unnoticed because of its very close resemblance to the Chipping Sparrow, with which it frequently associates.—O. L. Austin, Jr., *Austin Ornithological Research Station, North Eastham, Cape Cod, Mass.*

The Dickcissel in Virginia.—On May 27, 1927, Mrs. Freer and myself heard a song coming from a dead chestnut tree in the midst of an alfalfa field, just outside the city limits of Lynchburg, which was unmistakably that of a Dickcissel (*Spiza americana*). We followed up the song, and presently had a good view of the singer, a male, through our prism binoculars. This is my only record of its occurrence near Lynchburg.

On June 16, 1927, while driving through the Valley of Virginia, we saw and heard another male Dickcissel along the road-side near Newmarket, Va.

I have been very familiar with the Dickcissel in central western Ohio, where it is a common summer resident. I learn from Dr. H. C. Oberholser that there are only four records for the Dickcissel from Virginia, most of which date back twenty or thirty years.—Ruskin S. Freer, *Lynchburg College, Lynchburg, Va.*

A Seventeenth Century Representation of the Cardinal.—Among the many paintings by early Dutch artists exhibited in the Ryks-Museum in Amsterdam that include animals of various kinds, there is one of interest to American ornithologists in that it depicts a pair of Cardinals (*Richmondena cardinalis*). This canvas (cataloged as number 1223) is by M. d'Hondecoeter who lived from 1636 to 1695 so that the painting in question was made in the latter part of the Seventeenth Century.

As the Cardinals are shown grouped with a gray Parrot (*Psittacus erithacus*), a Love-bird (*Conurus madagascariensis*), a Cockatoo, a *Palaeornis*, and some Lories, it would appear that the painting was made from captive birds in Holland, indicating the early capture of living birds in America for transport to Europe. No colored plate from which the Cardinals might have been copied is known to me that was available at the period mentioned, nor does it seem probable that the representation was made from specimens preserved in some way.—Alexander Wetmore, *Smithsonian Institution, Washington, D. C.*

Abnormal Plumage of the Scarlet Tanager.—Early this summer a male Scarlet Tanager (*Piranga erythromelas*) was brought to me in a very

weakened and emaciated condition. I have some knowledge of keeping birds in captivity—maintaining an aviary for study—so after a few weeks the bird was again in perfect health. The peculiar part however was that the lesser wing coverts were tipped with red forming a quite symmetrical band across each wing. At the time of writing, October 28, the bird is in the winter plumage excepting a broken collar of red across the chest and a narrow band of red down the center of the abdomen. The bands on the wings are still scarlet however, and it will be interesting to note whether they will disappear or re-appear in the spring. This bird does not regain its red coat in captivity—it being replaced by pale salmon or orange differing in this respect from the South American Scarlet Tanager (*Ramphocelus brazilius*) of similar color pattern, which has no distinct winter plumage. However, the texture of plumage in this species is of a glassy or velvety appearance which may be the reason. Seeing our Scarlet Tanager one is impressed by the brilliancy of its coat—yet compared to the glowing scarlet of the South American species—when seen side by side—it appears dull and cold without particular life.—Karl Plath, *2847 Giddings St., Chicago, Ill.*

Solitary Vireo (Lanivireo solitarius) Nest Building in New Jersey.—On July 20, 1930, along Dunnfield Creek, which enters the Delaware River on the New Jersey side of Delaware Water Gap, I found a singing Solitary Vireo (*Lanivireo solitarius*) building a nest in a hemlock tree. The location of the nest was barely a half mile from the Delaware River and the altitude only about 500 feet, though the Kittatinny Mountains rise in the vicinity to 1,600 feet and the temperature in the deep shade of the glen where the nest was found probably averaged fully as low as at the higher levels.

The bird was gathering web and bits of bark from the hemlocks and the nest, only partly finished, was barely eight feet from the ground.

Returning the following week (July 27) I found the nest deserted and only a little farther advanced than when found. Evidence of a recent picnic under the trees may have been the cause. I hunted further up stream and less than fifty yards away found another partly completed nest—merely a platform in a crotch of a hemlock branch, and about the same distance from the ground. Continuing upstream I reached another deeply wooded glen and found two singing birds, one of which was constructing still another nest. I was unable to return again to determine whether the bird was mated, or whether it was merely a bachelor with an urge for housekeeping. But its activities add something to the evidence that the Solitary Vireo does breed within the state. Singing males have been found in recent years during June in the Kittatinny ridge near High Point and along Dunnfield Creek, but I know of no nest with eggs yet discovered.—Charles A. Urner, *Elizabeth, N. J.*

The Hooded Warbler Nesting near Toledo, Ohio.—At the western

edge of the "Oak Openings" a post-glacial lake beach lying just west of Toledo, is a beautiful swamp forest consisting for the most part of first-growth trees. Here on June 15, 1930, Mr. E. S. Thomas of Columbus, Ohio, and the writer discovered a nesting Hooded Warbler (*Wilsonia citrina*). The nest was built in a huckleberry bush, about two feet from the ground and contained three Warbler's eggs and one Cowbird's egg. This is the first record for the breeding of this species in northwestern Ohio. It is especially interesting in view of the fact that the Hooded Warbler has never before been seen in Lucas County even as a migrant.—Louis W. Campbell, *Toledo, Ohio.*

Wilson's Warblers at Sea.—On the morning of September 3, 1930, the Canadian Pacific S. S. Duchess of Bedford was visited by a large number of Warblers while proceeding west into the Gulf of St. Lawrence just south of Labrador. Land was not in sight because of a fog, though there was a certain degree of visibility for about one hundred yards along the water level.

Wilson's Warblers were by far the most abundant in the flock, but one or two individuals of the Magnolia, Black and White, Cape May, Blackpoll and Ovenbird were distinguished. They were absolutely fearless and fluttered about the decks lighting on the heads, hands, laps or feet of passengers in deckchairs. They were so numerous that deck games and walking had to be halted in order not to collide with a fluttering or perching bird. They were plainly exhausted, some resting with quivering sides, others injuring themselves against the upper structures of the ship and some being seen to even fail to reach the boat fly lower and lower towards the water and be engulfed by the wake of the ship. Many after resting or fluttering about the deck flew over the port rail to the south and were lost to sight in the fog. It was an excellent opportunity to study the more or less rare Wilson's Warbler in the hand. All were in autumnal plumage showing only a hint of the yellow of spring time under the olive appearance of the whole bird. The black cap of the males being just visible through the olive tipped feathers. The underparts also had an olive cast though paler than the back and wings. They appeared suddenly about 10 o'clock and for an hour were the center of attraction.—Wm. J. Cartwright, *Williamstown, Mass.*

A Late Fall Occurrence of the Northern Water-thrush.—On October 27, 1930, I saw a Northern Water-thrush (*Seiurus n. noveboracensis*) at the Big Spring Pond, near Lexington, Va. I had the bird under observation for fifteen minutes at close range with 8x glasses. Part of the time it was walking along a partially submerged log in open water near the shore. The buffy hue of the line over the eye and the sulphur tinge below were easily distinguished. This date is ten days later than any date given in Wells Cooke's 'Distribution and Migration of N. A. Warblers,' and eleven days later than any record for the Washington, D. C., region.—J. J. Murray, *Lexington, Va.*

Mockingbird Nesting on Nantucket, Massachusetts.—A nesting pair of Mockingbirds, and nest containing two infertile eggs and one nestling about a week old were discovered on June 20 on Nantucket Island and later in the day another adult bird was seen some miles from the site of the nest. I am unable to say whether this record is unique or merely rare.

I do not wish to disturb the birds but have offered to send the infertile eggs to the State Ornithologist if he so authorizes. It is entirely possible that the Mockingbird would establish itself here on this island.—Henry Emerson Tuttle, *Nantucket, Mass.*

Some Unusual Birds for Berkshire County, Massachusetts.—*Rallus elegans.* King Rail.—Although there are occasional occurrences of the King Rail in the eastern part of Massachusetts, reports of this bird in the western part of the state are wanting. In the early morning of July 2, 1930, Mr. Stanley Clarke Jr., of Pittsfield, and the writer were maneuvering a canoe up a narrow inlet at the head of Pontoosuc Lake, in Lanesboro, when we came suddenly upon a bird of this species moving among the grasses at the edge of the water. We saw it only long enough to assure ourselves of its identification. But later, on our return, just after flushing a Wilson's Snipe (rather a rarity here in summer) we met the Rail in the same place. We were able to approach quietly within eight feet of the unsuspicious bird, which obligingly permitted us to examine it for fully twenty minutes.

Piranga ludoviciana. Western Tanager.—According to the third volume of Mr. Forbush's 'Birds of Massachusetts,' this species has been definitely recorded in New England upon six previous occasions. In venturing to establish the following sight record, I feel positively certain of the identification because of the obvious and unmistakable field marks of the bird. On September 23, 1930, in company with Mr. H. A. Barton, of Dalton, I observed in the Pleasant Valley Bird and Wild Flower Sanctuary, at Lenox, an adult male Western Tanager in winter plumage. The bird was studied under fairly favorable conditions, with 7 x binoculars, at a distance of thirty feet. Passing it off casually at first as a Scarlet Tanager, my attention was riveted to the bright yellow underparts of the bird and I could not recollect having ever seen a Scarlet Tanager at that season with breast so intensely and uniformly yellow. The bird also exhibited its conspicuous wing-bars to our satisfaction—a fitting badge of its identity.

Vermivora pinus. Blue-winged Warbler.—In the volume referred to above, Mr. Forbush described this bird as "accidental or wanting" in western Massachusetts. On May 26, 1929, near the outlet of Stockbridge Bowl, in Stockbridge, Rev. Walden Pell of Middletown, Del., and I witnessed a fine adult male. Rev. Mr. Pell had discovered the bird in the very same place three days earlier.—Maurice Broun, *Lenox, Mass.*

Notes from Whitefish Point, Michigan.—Whitefish Point is in the northern peninsula of Michigan, on Lake Superior, and has been a collecting ground of note for many years. The following birds were collected there in 1929 and 1930.

Gavia stellata. RED-THROATED LOON.—A female in full breeding plumage was found dead on a set line, on June 4, 1930. It had taken the herring used as bait, and had the hook lodged in its throat.

Tringa canutus. KNOT.—A pair were seen on the beach of Whitefish Bay in company with three Black-bellied Plover (*Squatarola squatarola*) on the morning of June 5, 1930. A female in breeding plumage was collected.

Perisoreus c. canadensis. CANADA JAY.—A large flock of about thirty birds was seen nearly every day from June 2 to June 12,—the duration of my stay—along the shore, and around the house. Curren Hawkins, with whom I stayed, informed me that they had been in the locality since late winter. Four females and one male were collected. I believe they were mostly last year's young that were not going to mate, for in all cases the sex organs of those collected were small.

Cardinalis c. cardinalis. CARDINAL.—A female was collected on November 3, 1929 by Curren Hawkins and forwarded to me. This, I believe, is the first definite record of this bird in the upper peninsula of Michigan.—W. BRYANT TYRRELL, *Cranbrook Institute of Science, Bloomfield Hills, Michigan.*

Notes from Jackson County, Michigan.—The following notes show the possibilities of a small area. Unless otherwise stated all observations were made three miles north of the City of Jackson, Michigan and within a mile and a half of the junction of the Grand and Portage Rivers.

Charitonetta albeola. BUFFLEHEAD.—Most rivers and other bodies of water in interior Michigan, are frozen over during the winter months and for this reason few water birds spend the winter in the interior. However the Grand River, at its junction with the Portage rarely freezes due to the turbulence at this point and here during the winter of 1928–29 I found a female Bufflehead. I secured the bird on February 17, 1929 and now have the specimen in my collection. It appeared to be in good condition and showed no signs of physical disability that might have hindered it from migrating farther south.

Clangula hyemalis. OLD SQUAW.—A few Old Squaws were found here intermittently during the winter season of 1928–29 and spent the time when here at the junction of the Grand and Portage Rivers. Sometimes on warm days the Portage would open and the Ducks would be found there. February 1, 1929, a friend brought me a female which he shot from the highway bridge and on February 17 I took a young male from the same bridge. It was alone and was the last bird seen that winter. A year later, February 10, 1930, a single female was seen on the river and after considerable effort it was secured. This was the only one seen during the winter of 1929–30.

Pluvialis d. dominica. GOLDEN PLOVER.—The first Golden Plover I have seen here was on May 10, 1925, when a single bird was found in a muck field. The light was very good permitting minute observation. Unfortunately the bird was not taken but a pencil sketch was made at close range by George S. Wing. No Golden Plovers were seen again until late in September 1930, when a flock was seen almost daily but it was not until October 5 that a specimen was taken. This bird from a flock of fifteen proved to be a female. They were seen at intervals for several days and on October 17 a male and two more females were taken. All four birds were very fat, some having a quarter inch of fat over the entire body. The fat of the single male was hard dark yellow fat but that of the three females was very soft and flabby and of a light cream color.

Pinicola enucleator leucura. PINE GROSBEAK.—On December 19, 1929, I found a female Pine Grosbeak perched on the branches of a black willow about three feet from the ground. I secured the bird and found that it was quite fat and that its stomach was full of weed seeds. There was a storm a few days before which started as a rain and sleet storm; the wind shifted to the northwest changing the sleet storm to a heavy blizzard which raged on through the eighteenth and into the morning of the nineteenth. The Pine Grosbeak was found immediately after the passage of the storm and no doubt rode in on it. The bird was alone and kept whistling as though lost.

Acanthis l. linaria. REDPOLL.—The occurrence of Redpolls in Jackson County, is erratic and consequently we know very little of their distribution. On December 24, 1925, I found a flock of about one-hundred individuals in a tamarack swamp twelve miles east of Jackson (one mile southeast of Grass Lake) and collected four specimens all proving to be typical *linaria.*

Zonotrichia leucophrys gambeli. GAMBEL'S SPARROW.—Since 1925, when we first learned of the finding of Gambel's Sparrow in Michigan, we have carefully examined all White-crowned Sparrows that have gone through our traps. Although over two hundred and fifty have been so examined since 1925, only one Gambel's Sparrow has been found. The first Gambel's Sparrow was trapped October 13, 1930 and is now in my collection, a fine immature male which clearly shows the head markings of the species. It appeared to be in good health though heavily infested with mallophaga of a species not yet determined.

Lanius borealis. NORTHERN SHRIKE.—Mr. William G. Fargo and I collected a fine young female Northern Shrike, November 14, 1930, six miles northeast of Jackson. We observed the bird fly across the road ahead of us and perch in an oak tree about twenty-five feet from the ground. It apparently was following a flock of Tree Sparrows (*Spizella monticola*) feeding in a swamp below. The bird had no fat anywhere on its body and appeared to be in perfect condition and is the first Northern Shrike found here in a good many years. Mr. Fargo states that forty to fifty

years ago it was quite common in the winter and in favorite spots great numbers of mice and small birds would be found impaled on thorns.

Thryothorus l. ludovicianus. CAROLINA WREN.—On January 7, 1924 and for several days thereafter, a Carolina Wren appeared at our feeding station. Although manifesting all the nervousness of a Wren, it was not shy and fed on some suet tied to a bar across the window, four inches from the glass. We were able to observe this bird while seated within three feet of the window. It was not taken but George S. Wing made a pencil sketch which clearly shows the characteristic markings of the species.—LEONARD W. WING, *Jackson, Michigan.*

Certain Land Birds Observed at Sea.—It is always interesting to see birds under abnormal conditions. Many times such observations are of no scientific significance, but in the case of migrating birds they are always valuable, in that any intermediate point between their summer and winter homes is of interest. While on my way to Salem, Mass., in October, 1930, I made part of the trip by water, going to New York from Charleston via the Clyde-Mallory Line and returning the same way, two weeks later. A watch was kept for migrating birds en-route and the results of the observations may be of interest.

Migrants began showing up soon after the ship passed the Charleston Bar, on October 15. The first one of these was a Catbird (*Dumetella carolinensis*) which was flushed from the promenade deck forward, and which flew up to the boat deck. It appeared to be a good shape and was bright and active. The ship was, at the time, about thirty miles off-shore. An hour or two later, a Mourning Dove (*Zenaidura macroura carolinensis*) appeared, flew around the ship two or three times, and finally alighted on a stay of the foremast about six feet over the writer's head. Another was seen on the following day. In the afternoon, as the ship was about off Cape Lookout, North Carolina coast, and well out at sea, a House Wren (*Troglodytes a. aedon*) was seen on the forecastle. It crept about under the winches and about the mooring bitts for the better part of an hour.

Cape Hatteras was passed in the night and on the 16th, another Dove was seen early in the morning. The ship reached at this point, its furthest from shore, being about 100 miles out. A Flicker (*Colaptes auratus luteus*) came aboard early in the morning and remained all day. It perched here and there, calling loudly and evinced a clearly bewildered attitude. From then on, all through the day various birds appeared. A Palm Warbler (*Dendroica p. palmarum*) and several Myrtle Warblers (*Dendroica coronata*) were aboard for hours. These birds caught numbers of small moths which were about, making sallies from the various decks and seeming not to be inconvenienced in the slightest. Many of them would take off and fly westward for some distance, only to wheel about and come back to the ship. Three White-throated Sparrows (*Zonotrichia albicollis*) stayed most of the afternoon, creeping about the steel decks near the cargo hatches forward, as if searching for food. One of them

sat upon a coil of rope at the foremast for nearly an hour, chipping nervously occasionally. They seemed more ill at ease than the Warblers. Late in the afternoon, a Bobolink (*Dolichonyx orizivorus*) came aboard in a very tired condition and sat on the forecastle deck for about forty minutes without moving a muscle. I approached to within a few feet of it. A Pine Warbler (*Dendroica vigorsii*) was the last visitor that day. The weather all the way to New York was very fine and the sea nearly like a mill pond. The breeze was very light, mostly from the north-west.

The return trip, begun October 30, was very different in character. It blew hard all the way down from the south-west and the sea was rough. This militated against the occurrence of small birds, combined with the fact that the season was advanced by two full weeks. Nevertheless, Slate-colored Juncos (*Junco h. hyemalis*) were seen several times on the 31st, as well as Myrtle (*D. coronata*) and Palm Warblers (*D. p. palmarum*). I approached to within two feet of one of the latter as it sat upon the anchor cable. The most interesting item of the return trip was the presence of a Short-eared Owl (*Asio flammeus*). I first noticed the bird as I was watching some Gulls and Jaegers near the stern of the ship. The Owl was flying along about seventy-five yards off the port quarter, heading quartering into the fresh wind, and keeping a course parallel to that of the ship with remarkable exactness. It did not appear to be very tired, but flapped constantly, in striking contrast to the easy, soaring flight of the Gulls and Jaegers, which sometimes swooped within a foot of it. It kept behind for nearly half an hour during which time I did not take my eyes from it except for seconds at a time. Finally, it made a spurt, and came up opposite with the bridge, shot into the air to a height of perhaps fifty feet and started to drop downward, its feet were hanging at the time. Three times it did this, the wind blowing it back each time, until it finally dropped to the deck just aft of the bridge, where I lost sight of it.

Eleven species of land birds were seen, and had the ship been nearer to land others would doubtless have occurred.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

RECENT LITERATURE.

Mrs. Naumburg's 'Birds of Matto Grosso, Brazil.'—Upon the return of the Roosevelt Brazilian Expedition in 1914 it was planned to have the ornithological collections worked up by George K. Cherrie, ornithologist of the party, with the assistance of Mrs. Naumburg and some of the new forms obtained were described by them jointly. Then, owing to the return of Mr. Cherrie to Matto Grosso for additional collecting and his subsequent absence in other fields, Mrs. Naumburg was left to prepare the report[1] alone, a service to science and the American Museum which she has rendered voluntarily.

Her work has been admirably done; not only is it a report on the collections obtained by the expedition and by Mr. Cherrie but also of the other Matto Grosso material in the American Museum and in various European museums which she has visited in the course of her study, while she has added all of the species hitherto recorded from the region with necessary references. We have therefore a list of the 658 species and subspecies of Matto Grosso birds with detailed ranges of each as well as annotations by Mr. Cherrie, embodying the observations of the Roosevelt party, and by Mrs. Naumburg upon her studies of museum material.

There is also, in the preliminary pages of the report, a narrative of the Roosevelt expedition with a list of localities, prepared by Cherrie, and an account of the physiography, climate and faunal relations of the state of Matto Grosso, compiled by Mrs. Naumburg. The report is illustrated by numerous excellent halftones from photographs of the country and five colored plates from paintings by Jacques, as well as outline maps and text figures. An interesting forestry map shows the several floral areas of Brazil to which the faunal regions largely correspond. From this we learn that there are three principal areas represented within the borders of Matto Grosso: (1) the marshland about Corumba in the flood plain of the Rio Paraguay, (2) the Campo or tropical grassland country which covers so much of Brazil and in which is situated Chapada, a principal collecting ground, and (3) the Tropical Forest region of the Amazon drainage which follows the large rivers southward into northern Matto Grosso especially along the Rio Theodoro. Lists of endemic species of Matto Grosso, of birds secured by the expedition in Paraguay only, and of North American birds which winter in Brazil are presented and give a further idea of the relationship of the region. There is also an ornithological bibliography of Matto Grosso.

In this notable publication the American Museum has added one more to the series of monographs of South American bird life and for the time

[1] **The Birds of Matto Grosso, Brazil. A Report on the Birds Secured by the Roosevelt-Rondon Expedition. By Elsie M. B. Naumburg, with Field Notes by George K. Cherrie. Bull. Amer. Museum Nat. Hist., Vol. LX, 1930, pp. 1–432.**

and labor that Mrs. Naumburg has expended in its preparation ornithologists the world over are indebted.

In turning the pages of this report the reviewer is reminded of his enthusiasm upon receiving, from the late Dr. J. A. Allen, the successive parts of his 'Birds of Chapada, Matto Grosso' published in 1891–1893 and a comparison of this classic paper with Mrs. Naumburg's volume illustrates in a most striking way the development in methods of exploration and collecting during the forty years that have intervened as well as the enormous advance in ornithological knowledge in America.—W. S.

Weygandt's 'The Wissahickon Hills.'—The great charm of ornithology lies in its breadth of field. Now we have a technical monograph in which we marvel at the learning of the systematist, now an illustrated brochure in which the skill of the artist or photographer demands our admiration or again a sketch of bird life with a broad background of nature so written that it holds us in rapt attention as it brings before us as clearly as the artists brush the scene or the life that the author would portray.

Perfection in the last form of ornithological literature is difficult of attainment as it requires not only a thorough knowledge and appreciation of the subject and a regard for absolute accuracy of statement, but also an exceptional ability in the use of the English language. We feel, however, that all readers will agree that Dr. Weygandt in his 'The Wissahickon Hills,' has fulfilled all these requirements.

Widely known as Professor of English Literature in the University of Pennsylvania he is the author of many books on literature and history while to a smaller circle he is known as a member of the Delaware Valley Ornithological Club and an Associate of the American Ornithologists' Union of many years standing. While he has delighted his fellow members of the Club with his beautiful sketches of local bird life and has published some of them in 'Cassinia,' the present volume[1] is the first of his books in which nature constitutes the chief motif and in which the ornithological background runs from cover to cover.

From the title 'The Wissahickon Hills' only those familiar with the environs of Philadelphia and the natural beauty of the historic stream about which the sketches center, would suspect the wealth of bird-lore that the volume contains. These hills were the playground of the author in early boyhood and at their edge he has spent almost his entire life drinking in their beauty and storing up in memory and note books that intimate knowledge of their wild life, both animal and plant, that he pours forth so lavishly in his pages.

The book is a delightful combination of memories of boyhood, of local

[1] **The Wissahickon Hills. Memories of Leisure Hours out of Doors in an Old Countryside By Cornelius Weygandt. Professor of English Literature in the University of Pennsylvania. "The best thing that we're put here for's to see" Frost. University of Pennsylvania Press. Philadelphia: 1930. pp. i–xii 1–366 with 11 plates from old prints and paintings. Price $4.00.**

history and of scraps from a wide field of literature, while scattered through are chapters dealing wholly with birds some of them as delightful bird biographies as have yet been written, others dealing with special features of bird life and presenting valuable ornithological data. So we find as chapter headings: Brown Creeper, Robin, Flicker, Kentucky Warbler, Wren, Fox Sparrow, Ruby-crowned Kinglet, A Chimney Swift's Day, Rain Crow, Field Sparrow, Louisiana Water Thrush, Screech Owl, and Dove while there are also: Birds and Barrens, Roosting of Birds, and Concerning Birds-egging. Among other titles may be mentioned, In Praise of Wild Cherry, Heaths and Heathy Places, Mice and Mousing, Plums and Plum Blow, Possums and Persimmons and Seven Scents.

New England with her long line of nature writers has always done justice to her wild life, especially to her birds, but most of the other sections of our country have been more or less neglected. In 'The Wissahickon Hills,' however, we feel that Pennsylvania has come into her own. It is difficult to quote any special paragraphs from the volume since the sketches should be read in their entirety to appreciate their beauty but some descriptions particularly appeal to us. Of the Fox Sparrow, Dr. Weygandt writes "There is no bird song that has for me so much of 'over the hills and far away' in it as that of the fox sparrow. As the honk of the wild geese speaks to the hunter, so this long and liquid melody speaks to me. When I hear it I want to be on the road, I want to visit the distant places to which it opens vistas. Whether my feelings arise out of the very quality of the song, or whether I read a suggestion into it because of old associations, or because of my knowledge that the plump and bouncing fellow who utters it is a traveller on a long trail, a summerer in the sub-arctics, I do not know. But so it affects me."

Of the Field Sparrow's song he says: "The song of the Field Sparrow is a little song, a trembling and lonely melody, minor certainly, but never uncheerful. This year it first fell upon my ears one morning late in our May-like March, a morning with just enough of coolness on the air to give a tang to the day. . . . In quality it is essentially a spring song modestly ventured, but not timid, minor but not frail. An overflow of the bird's mating gladness, there is in it no echo of human passion. It is as tenderly austere as the April air through which its cadence falls. All through the mating season the song continues in its keen freshness, losing nothing of its springlike quality on mornings of midsummer or on some eve of November grown halcyon by chance."

And of Thrush song: "The Woodrobin's is the song for the country side as surely as the Hermit Thrush's is the song for more northern hills. The song of the woodrobin is deliberate, full, untroubled, heart-easing. The song of the hermit-thrush is uplifting, rhapsodic, rare, unsubstantial. Its music is a music northern, and sweet of the air, the music of the woodrobin is sweet of the woods of a richer more southern land." Every lover of nature should have Dr. Weygandt's book and share with him his enthusi-

asm for the hills which are his home "The Wissahickon Valley," he writes, "is not only a place of a thousand memories, but a place for new revelations of beauty of landscape. I who have lived on its hills for more than fifty years, have by no means exhausted their possibilities for surprise and for the awakening of wonder. . . . Tomorrow I may see birds here I never saw before, or arctic snowbirds again; and some day I may find gentain again or a lucky penny. And dawn and sunset, dewfall and the fall of night, moonrise and the stars are never twice the same. These hills, I know, will have freshness and charm for me all the days of my life."—W. S.

Birds of the German Gran Chaco Expedition.—Dr. Hans Krieg, Director of the museum at Munich accompanied by Dr. E. Linder of Stuttgart and a preparateur, Michael Kiefer, during the latter part of 1925 and most of 1926, made an expedition from Buenos Aires up the Rio Parana and through the Gran Chaco country to Santa Cruz and back to Asuncion. The bird collection which they obtained has been studied by Dr. Alfred Laubmann and his report upon it is presented in the volume before us.[1] He lists 339 species and subspecies of which *Taraba major krugi* (p. 172) from Santa Cruz, and *Campylorhamphus trochilirostris hellmayri* (p. 198) from Puerto Bermejo, Argentine Chaco, are described as new.

There is a synonymy under each species of all references pertaining to the region under consideration and a full discussion of the relationship of each form. Many halftones of scenery, birds and nests illustrate the text while there are a number of outline maps.

Dr. Laubmann, in the introductory pages, discusses the physical features of the Chaco region and the life zones, listing the characteristic birds of each and comparing his conclusions with those of Dr. Alexander Wetmore.[2] His whole treatment as well as his nomenclature is thoroughly up to date and he is to be congratulated upon an excellent piece of work. The volume forms a most welcome addition to the literature of South American ornithology and connects, as it were, the report of Mrs. Naumburg just reviewed with that of Dr. Wetmore to the south.—W. S.

Phillips' 'Catalogue of Game Books.'—Dr. John C. Phillips has placed all lovers of sport as well as ornithologists and mammalogists under lasting obligations by the publication of this painstaking bibliography.[3] The main portion consists of a list of works dealing, in whole or in part,

[1] Wissenschaftliche Ergebnisse der Deutschen Gran Chaco-Expedition (Leiter: Professor Dr. Hans Krieg). Vögel, Alfred Laubmann, pp. i–xv, 1–334. Price RM 42. Strecker und Schröder, Verlag, Stuttgart.

[2] Observations on the Birds of Argentina, Paraguay, Uruguay and Chile. Bull. 133, U. S. Nat. Mus. 1926.

[3] American Game Mammals and Birds. A Catalogue of Books, 1582–1925. Sport, Natural History, and Conservation. By John C. Phillips with the approval of the Boone & Crockett Club. Boston and New York: Houghton Mifflin Company; The Riverside Press, Cambridge. 1930, pp. 1–639. Price $10.

with the subject of North American game mammals, fur mammals, upland game birds, wild fowl and shore-birds, ranging from the Canadian Arctic to Central America and Panama, up to and including the year 1925. No article appearing in a magazine or scientific journal is included unless reprinted in separate form, while general works on birds or mammals are listed only when they contain information on game or fur bearers.

Part II of the work consists of publications on conservation including reports of the United States Government and the several States, as well as of Canada. Part III is a list of periodicals containing articles on the subjects listed above as well as many on shooting, fishing, camping etc. when pertinent.

We learn from the introduction that the preparation of this catalogue was inspired by the magnificent library on sport, and travel gathered by the late Charles Sheldon and now preserved in Yale University where it will be "cared for and enlarged as a permanent tribute to the collector." Dr. Phillips also informs us that Sheldon's enthusiasm for the preparation of the 'Catalogue' rendered his own task both easy and delightful.

Dr. Phillips has done his work well and anyone glancing over the pages will have great difficulty in detecting any omissions, while he will come upon hosts of titles of works that he never heard of before. The compiler's annotations under many of the titles are helpful and interesting, sometimes running to extended summaries of the contents. Our only suggestion for improvement would be for a little fuller citation in the case of certain journals. While full details are given for obscure publications taken usually from F. L. Burns' bibliography, data for the larger journals are often very meager. For 'The Condor,' for instance, there is no mention of an editor while the citation of 'The Auk' applies only to the very first numbers when it was published by Estes and Lauriat, in Boston.

Dr. Phillips' 'Catalogue' will be invaluable as a work of reference for all interested in sport and natural history and, although bibliographies are not generally recommended for light reading, a perusal of the titles and comments of this one will yield a store of interesting information.—W. S.

Phillips and Lincoln on 'American Waterfowl.'—In this important volume[1] is presented a mass of information on every phase of the wild duck and goose problem arranged and summarized in such a way that it is easily accessable to the reader and constitutes most interesting reading. There has been so much difference of opinion on the question of wild fowl conservation that all sportsmen and those interested in the preservation of our wild life should read this book carefully.

Part I deals with our waterfowl under three headings; breeding areas, winter areas and migration. Part II is devoted to factors adverse to water

[1] American Waterfowl. Their Present Situation and the Outlook for their Future. By John C. Phillips and Frederick C. Lincoln With Illustrations by Allan Brooks and A. L. Ripley. Boston and New York Houghton Mifflin Company. The Riverside Press Cambridge. 1930. Pp. i–xv + 1–312.

fowl preservation—irrigation and drainage, shooting, poisons, etc., natural enemies and oil pollution. Part III discusses conservation and Part IV sport and sportsmen—the ethics of the subject.

In addition there is an appendix listing all of the North American Ducks and Geese, with their names, breeding and winter ranges, status, and weight, while some excellent illustrations in black and white from wash drawings by Allan Brooks, show all the species as the gunner sees them—i. e. in flight.

We cannot in the short space of a review discuss the multitude of subjects presented on the pages of this interesting book but every reader will be impressed with the problem that is before both ducks and gunners if the supply of birds is to be maintained anywhere near its present numbers to say nothing of the host of birds that were present in times gone by. What with the million or more duck hunters among our seven million shooters, and upwards of eight million ducks and geese shot in the United States every year; what with the draining of marshes where the birds bred and the cultivation of vast areas in the northwest where formerly they ranged, coupled with the terrible menace of oil on sea and inland waters and the increased transportation facilities for hunters offered by automobiles and airplanes, ducks are liable to be very hard pressed and the situation deserves the most careful consideration by all.

The authors deserve the thanks of all sportsmen, naturalists and game commissions for their timely volume.—W. S.

Phillips' and Hill's 'Classics of the American Shooting Field.'—This is a handsome volume[1] designed primarily for the sportsman but full of interesting reading for the ornithologist and nature lover. It consists of fifteen chapters on various shooting experiences by noted writers on "sport" including Thomas Doughty, editor of the famous "Cabinet," Frank Forester, John Krider, Philadelphia's noted gunsmith, T. Robinson Warren, J. J. Pringle, Hamblen Sears, Edwyn Sandys, Grover Cleveland, Nash Buckingham and Ben Ames Williams, and as an appendix, a list of some notable books on American shooting.

The authors are sportsmen in the true sense of the word who regard sport with a reverence akin to the attitude of the true ornithologist toward bird study, and their volume will find much favor with others of their kind though we regret to say that their number seems to be rapidly growing less even though the number of shooting licenses is constantly increasing. There are entirely too many mere killers abroad today and every effort toward their education as to what constitutes true sport deserves encouragement. We feel that the present volume is an effort in that direction.

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[1] Classics of the American Shooting Field. A Mixed Bag for the Kidly Sportsman 1783–1926. Edited by John C. Phillips and Lewis Webb Hill, M.D. With a Frontispiece by Frank W. Benson And other illustrations. Boston and New York, Houghton Mifflin Company. The Riverside Press, Cambridge, 1930. Pp. i–xv + 1–215. Price $7.50.

There is a charm about the pursuit of game with one's favorite gun and well trained dog, that cannot be equaled in the minds of many lovers of the outdoors and the varied accounts of days afield which are here presented will arouse many a memory. The numerous reproductions of old prints and etchings as well as several more modern works by Frank W. Benson, notably the colored frontispiece of the Woodcock, add greatly to the attractiveness of the book.—W. S.

Fuertes' Last Paintings.—Mr. C. Suydam Cutting has done a very gracious thing in making possible the publication by the Field Museum of a number of the paintings of African birds and mammals made by the late Louis Agassiz Fuertes on the Field Museum-Chicago Daily News Expedition to Abyssinia of which party both the artist and Mr. Cutting were members.

The entire collection of 108 paintings was purchased by Mr. Cutting, after Fuertes' untimely death, and presented to the museum and now through his further generosity a selection of thirty-two of these have been beautifully reproduced by offset lithography and issued in a portfolio as a special publication[1] of the museum.

Fuertes it is generally agreed was at the very peak of his genius when his life came to its tragic end and the wonderful pictures painted on this last trip fully confirm this opinion. Most of them are heads of the Eagles, Vultures and other large birds, in the drawing of which he took such keen delight; others represent Kingfishers, a Trogan and a Prionops, with all the delicacy of a Japanese painting and there are in addition four pictures of mammals—heads of a wolf, a baboon and a duiker and a group of baboons. There is a brief explanation of each plate on the back and each is mounted on cardboard so that it can be framed if desired. An introduction by Dr. W. H. Osgood, curator of zoology in the museum, who was leader of the expedition, explains the publication.

The portfolio makes a most suitable memorial to the artist-ornithologist and renders it possible for his friend and admirers to possess some of his very last and best work so perfectly reproduced that it is almost as satisfactory as the originals.—W. S.

Birds of the British Antarctic Expedition of 1910.—When the "Terra Nova" returned from the Antarctic she brought back the bird skins and notes prepared by Dr. E. A. Wilson, ornithologist of the expedition, who perished with Scott and others of the ill fated polar party. Owing to the subsequent death of Mr. Ogilvie Grant, who was to have prepared a report on the birds, the publication has been long delayed but now appears under the able handling of Messrs. Percy R. Lowe and N. B. Kinnear.[2]

[1] Abyssinian Birds and Mammals Painted from Life. By Louis Agassiz Fuertes. Published by Field Museum of Natural History, Chicago, U. S. A. Through the generosity of C. Suydam Cutting. Price $3.00.

[2] British Antarctic ("Terra Nova") Expedition, 1910. Natural History Report. Zoology, IV, No. 5, pp. 103–193. Birds. By P. R. Lowe and N. B. Kinnear. With twenty-four text-figures and sixteen plates, British Museum, London, 1930. Issued July 26, 1930. Price 20 shillings.

Sixteen quarto plates, many of them in colors and all from drawings by Dr. Wilson, illustrate the heads and feet of many birds and flight poses of various Tubinares sketched from life. Forty species of birds were collected or observed, including two Penguins, three Skuas, twenty-two Petrels, seven Albatrosses, two Boobies and two Frigate-birds.

Beside Dr. Wilson's notes which are reproduced verbatim and a list of the specimens, data are presented on many additional specimens in the British and Tring Museums and there are full discussions of the relationship of species and plumages so that the report becomes a most important contribution to Antarctic ornithology. The perplexing phases of plumage presented by many of the Tubinares are discussed and much light thrown upon their significance.

The authors deserve our thanks for the care that they have taken in the preparation of this publication.

American ornithologists will recall that Dr. Wilson, well known for his previous Antarctic report on the birds of the "Discovery" expedition and other papers, was a great-nephew of Dr. Thomas B. Wilson one time president and patron of the Academy of Natural Sciences of Philadelphia and donor of many of its most important collections notably the Gould collection of Australian birds and the famous Rivoli collection.—W. S.

Vertebrates of the Lassen Peak Region.—Dr. Grinnell and his associates of the Museum of Vertebrate Zoology have put forth another massive volume[1] concerned with the vertebrate fauna of California. This time they deal with northern California covering a section 24 x 124 miles in extent cutting through the Lassen Peak region from east to west.

Numerous trips by members of the museum staff to various parts of the section have resulted in a collection of 3592 specimens and voluminous notes, which form the basis of the report. The objects of the work as outlined by the authors are to determine the species of vertebrates present in the region, their relative abundance, their habitat distribution and factors governing it, their annual cycle of activity and "the determination of a way to analyze vertebrate communities and successions."

The factors accounting for habitat limitations of terrestrial vertebrates as determined by the authors are (1) inherent structural peculiarities, (2) vegetation, (3) nature of ground surface, (4) presence of water, (5) altitude, (6) physiographical relation to surrounding territory, (7) presence of absence of other animals. The thirty-seven habitats of the region they group under aquatic, low vegetation, brush-land, wood-land, forest, rock-land, and human made. These are discussed in great detail with numerous photographic illustrations.

We then pass to a consideration of the life zones of the area with lists

[1] Vertebrate Natural History of a Section of Northern California through the Lassen Peak Region. By Joseph Grinnell, Joseph Dixon, Jean M. Linsdale. Univ. Calif. Publ. in Zool., Vol. 35, pp. i–v+1–594, 181 text figs. Berkeley, Calif., 1930. Price $6.

of characteristic trees and shrubs and vertebrates, with maps of actual records of distribution within the Lassen section.

Another part of the report discusses bird population with many lists of species showing the actual numbers of each seen in a given time and area.

The main portion of the work consists of a very fully annotated list of all of the 387 forms of vertebrates arranged systematically. The amount of detailed data contained in this publication is enormous and not only the California naturalist but the student of the broader problems of animal distribution and ecology will find it a veritable reservoir of information.

We have but one criticism of the work and that is the nomenclature employed. We fully realize the radical difference of opinion on various phases of this perplexing subject, but personally we are always ready to sink our opinion when a majority of any Committee appointed to deal with the subject is against us, as we feel that uniformity is far more important that the exploitation of personal opinion. We refer, be it understood, to general or popular usage. In a technical systematic discussion one is of course at liberty to state his opinions and uphold them by argument. It is the English names of the present report to which we take exception. These follow Dr. Grinnell's personal views although they are the names which the general public is supposed to use and by which they must refer in other works. The latter almost without exception adhere to the A. O. U. 'Check-List' and the Committee in charge of the new edition of this work at the almost unanimous request of all who have been consulted will adhere as closely as possible to the names now in use. Dr. Grinnell however sets up an entirely original set of vernacular names which not only confuse the reader but, when used alone as they often are, make it difficult for one to know what bird is meant. "Slender-billed White-breasted Nuthatch," "Red-bellied Red-shouldered Hawk," "Sierra Nevada Oregon Junco" and "California Acorn-storing Woodpecker" are, to use a slang expression, a "mouth-full" and quite impossible for labelling purposes or easy quotation. Also with only the 'Check-List' and other standard works to refer to how is the general reader to know what the "Ladder-backed Woodpecker" or the "American Water Pipit" may be? Why not let the Latin names indicate relationship and change them as we must in accord with our code of rules, but at least let us enjoy the stability of common names and adhere to those that have a respectable literature back of them.

These remarks are merely a side issue and in no way affect our admiration for Dr. Grinnell's excellent work or the splendid volume that he and his staff have given us.—W. S.

Riviere's 'Birds of Norfolk.'—In none of the English counties have birds been studied so continuously or so intensively as in Norfolk. From the time of Sir Thomas Browne, in the seventeenth century, down through a long line of able local ornithologists—the Pagets, Stevenson, Southwell,

and the Gurneys, to the author of the present volume, the literature of British ornithology has been well supplied with notes from Norfolk and several volumes have appeared on the subject.

The present attractive and well printed publication[1] brings the county ornithology down to the end of the year 1929 and is a well written entertaining work, presenting an excellent resume of the history of each species in the county with an account of the physical features of Norfolk and an excellent map. The nomenclature wisely follows that of Witherby's 'Handbook.'

We learn that game preserving which has been brought to such a high pitch in Norfolk has undoubtedly had a marked influence on the avifauna of the county and the planting of coverts for the Pheasants and the seclusion of the preserves, has greatly benefitted passerine birds. But, says the author, "to game preserving we probably owe the extinction as breeding species of the Peregrine Falcon, Buzzard, Raven, Hen Harrier and Hobby and the general scarcity of raptorial birds." The recent reëstablishment of the Harriers he adds "shows a better spirit than formerly." Let us hope that those responsible for the regrettable destruction of Marsh Hawks in America will give heed to this statement.

In the interesting discussion of migration there is much comment on the relation between wind and flight for Norfolk, with its ninety miles of seacoast bounding two sides of the county, is the landing place for migrants crossing the North Sea and as in America Mr. Riviere finds that the birds prefer to fly into the wind and their migration is "held in abeyance" during a "tail wind."

The book is well gotten up with a number of half-tone illustrations of birds and nests, one of which shows a male Harrier passing food to a female while both are flying in mid air.—W. S.

Stuart Baker's Game Birds of India, Burma and Ceylon.—Volume III of this splendid work[2] covers the Pheasants and Bustard Quail with colored plates from paintings by Grönvold. The text is replete with interesting matter, full discussions of the relationship of the various species and races, their varied plumages and molts and descriptions of the nesting habits and eggs, the last accompanied by careful measurements. Many appropriate quotations from other authorities add to the value and completeness of the work.

Speaking of the diminutive Bustard Quails as game birds the author

[1] A History of the Birds of Norfolk. By B. B. Reviere with sixteen plates and a map in colour. London. H. F. and G. Witherby 326 High Holborn, W. C. 1930, pp. i–xlviii + 1–296. Price 25 shillings net.

[2] The Game Birds of India, Burma and Ceylon. Pheasants and Bustard-Quail. Vol. III. By E. C. Stuart Baker. O. B. E., F. L. S., F. Z. S., M. B. O. U., H. F. A. O. U., with eleven colored and nine black and white plates. Published by the Bombay Natural History Society; London. John Bale, Sons & Danielson, Ltd., Oxford House, 83–91 Great Titchfield Street, W. 1. 1930, pp. i–x + 1–341. Price £ 2 2s. net.

says: "Their flight is much like that of the English Quail but they are so tiny that if fired at close and hit there is nothing left to pick up, whilst if time is allowed for them to get a fair distance they take advantage of it to make one of their disconcerting dives into the grass."

There is much of interest in the accounts of the Pheasants. Speaking of the Peafowl Mr. Baker says: "It is wonderful the way a Peafowl in all the pride of plumage and gorgeous lengthy train will slip through jungles which one would imagine dense enough to stop his movements altogether with such an encumbrance. He seems to be as sinuous as a snake in his movements, as stealthy as a cat, in his tread, and as wary as an old bull bison in watching for foes." Old Peacocks he tells us are not much good as game, the meat being "desperately tough and stringy" but young birds are good eating.

We congratulate Mr. Baker upon another of his attractive volumes which must interest all lovers of sport as well as ornithologists and which makes a notable addition to any library.—W. S.

The Birds of Switzerland.—This comprehensive work[1] which had advanced to the end of the fifteenth livraison at the time of the death of Gustave Burg, its editor, is being continued by Walter Knopfli and the sixteenth livraison is before us, covering the Rails, Herons and Shorebirds.

Each species is treated at length with a discussion of synonymy vernacular names, nesting, migration, winter quarters, biological notes, geographic distribution, economic value, hunting (in the case of game birds), etc.

The work is entirely in French and the nomenclature not always up to date, while the arrangement is rather confusing. Each species is treated independently and its closest associates may or may not follow. Thus the species of Rails and Herons are interpolated between sections of the Charadriidae and yet the pagination is continuous.

The work contains a vast amount of information and should be a standard authority on the birds of Switzerland for many years to come.—W. S.

Hortling's 'Birds of Finland.'—The fourth part of this important work,[2] which was noticed in the October 'Auk,' is now before us, covering the remainder of the Ducks and the Petrels, Cormorants, Grebes, Loons, Doves and portion of the Shorebirds. Apparently another part is required to complete the work. The present instalment is equal in every way to its predecessors and like them entirely in the Finnish language.—W. S.

[1] Les Oiseaux de la Suisse (Catalogue des Oiseaux de la Suisse de V. Fatio et Th. Studer). Parait par livraisons. XVIe livraison: Echassiers, Rallidés, Scolopacidés, Pluviers, et espéces parentes. Elaboré par ordre du Department fédéral de l'Intérieur (Inspection des forêts, chasse et pêche) Par Gustave von Burg et Walter Knopfli avec le concours de nombreux collaborateurs de tous les cantons. En commission chez Georg & Cie, S. A., librairie, Genève, 5, Corraterie. 1930, pp. 3171–3606. Price Fr. 12.

[2] Ornitologisk Handbok. By Dr. Ivar Hortling. Part IV, pp. 601–800. Price 75 Fmk. per part.

Henry's 'Birds of Ceylon.'—The third part of G. M. Henry's notable plates of the Birds of Ceylon[1] with descriptive text by W. E. Wait has recently been issued, including reproductions of sixteen more of the artist's admirable paintings. They cover a wide range of subject, a Trogon, Swiftlet, Hornbill, Jay, and many small Passerine birds as well as Lafayette's Jungle Fowl, and well demonstrate the variety of bird life and the brilliant plumage to be found on the island. The notice of the first part of the work will be found in 'The Auk' for 1928, p. 240.—W. S.

Snyder and Logier on Ontario Vertebrates.—This paper[2] is a study of the vertebrate animals of King Township, York Co., Ontario, which lies close to Toronto, and is the result of local collecting for the Ontario Museum. After some general remarks Mr. Snyder presents a well annotated list of the mammals and birds and Mr. Logier of the reptiles and amphibians, the list of birds comprising 112 species.

A notable observation was that of a young Song Sparrow, a bird of the year, singing on August 1, a song recognizable as a Song Sparrow's song but with a harsh rasping quality. In this connection we notice that the symbol "Yg." is used for young of the year and "Im." for birds "known to be in their second year" though we are not informed how this definite determination of age was ascertained. It seems unfortunate that so many different terms are used to denote young birds when the late Dr. Dwight took so much pains to point out the several plumages and molts and to establish a definite nomenclature for them. Uniformity in this matter is greatly to be desired.

Mr. Snyder has made an important addition to local papers dealing with the avifauna of Ontario.—W. S.

Fuller and Bole on Wyoming Birds. This well printed pamphlet[3] is a report upon a collection of 172 specimens of birds made by the authors on three trips to western Wyoming and deposited in the Cleveland Museum of Natural History. The annotated list of 122 species is well prepared and adds to our knowledge of the local distribution of the birds mentioned. The identifications were made by Dr. H. C. Oberholser and the nomenclature follows his views.

The report is attractively gotten up, well printed on heavy paper and illustrated with nine beautiful photogravure plates, mainly of scenery

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[1] Coloured Plates of the Birds of Ceylon. By G. M. Henry with a short description of each bird by W. E. Wait. Part III. With sixteen colored plates. Published by the Ceylon Government, 1930. Delau & Co., Ltd. 32 Old Bond Street, London. W. 1. Price £1. 10s.

[2] A Faunal Investigation of King Township, York County, Ontario By L. L. Snyder and E. B. S. Logier. Trans. Royal Canadian Inst., XVII, Part 2, pp. 167–208. 1930.

[3] Observations on Some Wyoming Birds. By Arthur B. Fuller and B. P. Bole, Jr. Scientific Publ. of the Cleveland Museum of Natural History. Vol. I, No. 2, pp. 37–80, pls. VII–XVI, September 27, 1930.

but two of them depicting Cliff Swallows' nests and one a young Swainson's Hawk.

Crabb on Woodpeckers of Oklahoma.—Mr. Crabb has found fifteen species and subspecies of Woodpeckers in the state of Oklahoma; each is described in detail in the present pamphlet[1] with an account of its habits, food, call notes, etc., and a bibliography of literature consulted is appended. The publication should be of service in giving to the public information on these valuable birds and arousing a greater interest in them. There are several halftone illustrations of structural characters and plumage. It is a publication of the University of Oklahoma Biological Survey.—W. S.

Birds of the Virgin Islands.—Prof. S. T. Danforth of the University of Porto Rico has published[2] his records of birds observed or collected on several trips to the various islands of the Virgin Island group. Fifty-eight species are listed with annotations dealing especially with food. Appended to the paper is another[3] by Harry A. Beaty, of St. Croix, summarizing his many years study of the birds of this island, including observations on habits, abundance etc., and descriptions of the nests and eggs. This list comprises 88 species among which is the first record of the Canada Warbler for the West Indies and several first records for St. Croix.

The two papers present the most complete account that we have of the birds of the Virgin Islands although Dr. Wetmore has listed all the Virgin Island records known to him in his more comprehensive 'Birds of Porto Rico.'—W. S.

Grote on the Wintering of Palaearctic Birds in Africa.—This paper[4] is a compilation of winter records in Africa of a long list of Palaearctic birds with references to a bibliography of 184 titles of papers dealing with African collections and explorations.

The author discusses the records with regard to routes of travel and dates of occurrence and differentiates between the ranges of subspecies of the same form which are found in Africa during winter. He has performed an excellent service which will be of much assistance to students of migration and geographic distribution.—W. S.

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[1] The Woodpeckers of Oklahoma. By Edward Drane Crabb. University of Colorado. Publ. Univ. Oklahoma. Vol. II, No. 3, 1930, pp. 111–158.

[2] Bird Records from the Virgin Islands. By Stuart T. Danforth.

[3] Birds of St. Croix. By Harry A. Beaty. Reprinted from the Journal of the Dept. of Agriculture of Porto Rico. Vol. XIV, No. 3, July, 1930, pp. 107–150.

[4] Wanderungen und Winterquartiere der paläarktischen Zugvögel in Afrika. Von Hermann Grote. Sonderabdruck aus: Mitteilungen aus dem Zool. Mus. in Berlin. XVI, Heft 1, pp. 1–116. 1930.

Riley on Birds from Borneo and Mongolia.—In a recent paper[1] Mr. J. H. Riley reports on a collection of birds made by Mr. H. C. Raven at the instance of Dr. W. L. Abbott on islands off the northeast coast of Dutch Borneo. Forty-three forms are listed, a number of which had been previously described and named by the author. The report forms an interesting contribution to the ornithology of a little known region.

In another paper Mr. Riley reports on a collection made by Mr. F. R. Wulsin in inner Mongolia, Kansu and Chihli. This collection includes 166 species but apparently none new to science. Both collections are now in the U. S. National Museum.—W. S.

Recent Papers by Wetmore.—Dr. Alexander Wetmore has recently described[2] a new Ground Dove (*Chaemepelia p. navassae*) from Navassa Island, south of Haiti (p. 149). It would seem however, that it is necessary to revert to the generic name *Columbigallina* for these birds. This name of Boie was rejected some years ago on account of a previous *Columbigallina* of Oken but when these names of Oken were ruled to be nomina nuda by the International Commission the bar to the use of *Columbigallina* Boie was removed. This reversion is perhaps fortunate since it renders the controversy on the orthography of *Chaemepelia*, about which there was much discussion, a matter of little importance since the name becomes merely a synonym. The International Commission it will be remembered rendered a very unfortunate decision (no. 61) by ruling that we must emend the name to *Chamaepelia* in accordance with its probable derivation and regardless of its original spelling, Dr. Wetmore by the way seems to have ignored this ruling of the Commission!

In another recent paper[3] Dr. Wetmore describes some fossil bird bones from the Temblor Formation near Bakersfield, Calif. naming as new *Puffinus inceptor* (p. 86), *Moris vagabundus* (p. 89) and *Presbychen* (genus nov.) *abavus* (p. 92).—W. S.

Carriker on New Peruvian Birds.—During the last part of December 1929 and the first six months of 1930, Mr. M. A. Carriker made a large collection of birds in Peru for the Academy of Natural Sciences of Philadelphia. A preliminary examination and study of this material has resulted in the discovery of several forms new to science and these have been described in a recent paper.[4] They are as follows: *Eubucco richardsoni*

[1] Birds from the Small Islands off the Northeast Coast of Dutch Borneo. By J. H. Riley. Proc. U. S. Nat. Mus. Vol. 77. Art. 12, pp. 1–23. 1930. Birds Collected in Inner Mongolia, Kansu and Chihli by the National Geographic Society's Central China Expedition under the Direction of F. R. Wulsin. Ibid. Art. 15, pp. 1–39. 1930.

[2] The Ground Dove of Navassa Island. By Alexander Wetmore. Proc. Biol. Soc. Washington, Vol. 43, pp. 149–150. September 26, 1930.

[3] Fossil Bird Remains from the Temblor Formation near Bakersfield, California. By Alexander Wetmore. Proc. Calif. Acad. Sci., Fourth Series, Vol. XIX, No. 8, pp. 85–93. 1930, July 15.

[4] Descriptions of New Birds from Peru and Ecuador. Proc. Acad. Nat. Sci. Phila., LXXXII, pp. 367–376, Dec. 15, 1930.

coccineus (p. 367), *Picumnis grandis* (p. 367), *Microrhopias quixensis nigriventris* (p. 368), *Hylophylax poecilonota obscurior* (p. 369), *H. naevia yessupi* (p. 369), *Grallaria berlepschi yessupi* (p. 370), and *Cyanocompsa cyanoides peruvianus* (p. 373)—all from Puerto Yessup, Juin, Peru; also *Xenoctistes subalaris ruficrissa* (p. 372), *Chlorochrysa calliparaea caeruleipectus* (p. 375) and *Cyclaris gujanensis albiventris* (p. 375) from Enenas, Junin; *Pipramorpha macconnelli peruana* (p. 372) Perene, Chanchamayo; *Sporophila luctuosa albilateralis* (p. 374) Accobamba, and *Spinus atratus fasciatus* (p. 374) Opamayo, Lake Junin.

In the course of his studies he discovered that two Ecudorean races formerly identified with Peruvian forms were distinct and proposes *Hypocnemis cantator saturatus* (p. 368) Voca, Rio Curauay, and *Hylophylax naevia intermedia* (p. 370) Boca Lagarto, Cocha, Ecuador.

There are remarks on several other species which indicate that *Orchilus rufipes* Tschudi is a well marked race of *Euscarthmornis margaritaceiventer* while *Myrmoderus hemimelaenus spodiogaster* Berl. and Stolz. and *Thamnophilus palliatus puncticeps* are, in Mr. Carriker's opinion, untenable.—W. S.

Peters on Ceophloeus lineatus.—Mr. Peters in a review of this species[1] recognizes no less than eight subspecies of which *C. l. nuperus* (p. 321) from Santa Marta is described as new.—W. S.

Gyldenstolpe on Ecuador Birds.—In a recent paper[2] by Nils Gyldenstolpe he proposes *Synallaxis cherriei* (p. 2) for *S. rufogularis* Cherrie preoccupied, and describes as new *S. c. napoensis* (p. 3) from Rio Napo. He also presents a revision of *S. rutilans* in which he recognizes four subspecies with a key to show the differences between these races and those of *S. cherriei*.

Another paper[3] discusses the Ant Wren allied to *Myrmotherula surinamensis* in which are described *M. longicauda pseudoaustralis* (p. 28) from Moyobamba, Peru and *M. australis sōderstrōmi* (p. 36) from Rio Napo, eastern Ecuador.—W. S.

Recent Papers by Oberholser.—Dr. H. C. Oberholser has recently proposed[4] a new genus *Painterius* (p. 81) for the African Starling *Spreo superbus* and a colored plate of the bird from a painting by F. L. Jaques

[1] A Review of the Races of Picus lineatus Linné., Occas. Papers. Boston Soc. Nat. Hist., Vol. 5, pp. 317–322. September 2, 1930.

[2] On a New Spine-tail from East Ecuador together with some notes on the forms of the *Synallaxis rutilans* Group. By Nils Gyldenstolpe, Arkiv. for Zoologi K. Svenska Vetenskapsakad. Band 21A, No. 25, pp. 1–20. Stockholm, 1930.

[3] Notes on Ant Wrens allied to *Myrmotherula surinamensis* Gmelin, together with the Descriptions of Two New Forms. By Nils Gyldenstolpe. Ibid. No. 26, pp. 1–38.

[4] A New Genus of African Starlings. By Harry C. Oberholser. Scientific Publ. Cleveland Mus. Nat. Hist., Vol. I, No. 3, pp. 81–82, pl. XVII. September 30, 1930.

is presented. He has also described[1] another race of Winter Wren, *Nannus troglodytes stevensoni* (p. 151) from Amak in the Aleutian Chain.—W. S.

Friedmann on African Birds.—Dr. Friedmann has recently described[2] several new races of African birds as follows: *Sheppardia cyornithopsis bangsi* (p. 323) from the Uluguru Mountains, Tanganyika; *Petrophila rufocinerea tenuis* (p. 325) from Mt. Lololokui, Kenya Colony;[3] and *Cossypha heuglini euronota* (p. 327) from Lumbo, Mosambique.[4] Discussions of related forms accompany each description.—W. S.

Bowen on African Birds.—Mr. W. W. Bowen in pursuing his studies of the birds collected on the Gray Expedition of the Philadelphia Academy describes as new *Heterotrogan vittatum keniensis* (p. 265)[5] and also the geographical variation in *Poicephalus fuscicapillus*[6] proposing as new *P. f. tanganyikae* (p. 267) from Tanganyika Territory.—W. S.

Larson on the Osteology of the Road-runner.—In this paper[7] the author presents an elaborate series of measurements and comparisons which seem to demonstrate that the Pleistocene Road-runner of the La Brea asphalt beds is identical with the bird living in California today, *Geococcyx californicus*, so far as skeletal characters go, and that the peculiar limbs of the bird had been adapted to its mode of life probably at a still more remote time. The paper makes a valuable contribution to avian osteology. —W. S.

Gorbunoff on Mammals and Birds of Novaya Zemlya.—This is a report[8] on collections made by the author in the island during the summers of 1923, 1924, 1925 and 1927. Forty-eight species of birds are listed with annotations. There is also a brief supplement to the author's 'Loomeries of Novaya Zemlya (Published in 1925 by the Inst. for Sci. Explor. of the North, in Moscow).

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[1] Another New Subspecies of Nannus troglodytes from Alaska. By Harry C. Oberholser. Proc. Biol. Soc. Washington, Vol. 43, pp. 151–152. September 26, 1930.

[2] Notes on *Sheppardia cyornithopsis* with Description of a new race. By Herbert Friedmann. Occas. Papers Boston Soc. Nat. Hist., Vol. 5, pp. 323–324. September 2, 1930.

[3] A Rock Thrush new to Science from Northern Kenya Colony. By Herbert Friedmann. Ibid., pp. 325–326. Same date.

[4] The Forms of the White-browed Robin-Chat, *Cossypha heuglini* Hartlaub. By Herbert Friedmann. Ibid. pp. 327–328. September 2, 1930.

[5] A New Race of Heterotrogon vittatum from Mount Kenya. By W. Wedgwood Bowen. Proc. Acad. Nat. Sci. Phila., Vol. LXXXII, pp. 265–266. October 1, 1930.

[6] Geographical Variation in Poicephalus fuscicapillus. By W. Wedgwood Bowen,, Ibid., pp. 267–268. October 6, 1930.

[7] Osteology of the California Road-runner Recent and Pleistocene. By Leigh Marian Larson. Univ. Calif. Publ. in Zool., Vol. 32, No. 4, pp. 409–428. January 24, 1930.

[8] Berichte zur Säugetier und Vogelfauna der Nowaja Semlja von G. Gorbunoff, Veröffen. des Inst. zur Erforsch. des Nord., Bd. 40. pp. 171–239.

The present paper is in Russian and German the latter text being much condensed.—W. S.

Food of Ring-necked Pheasant in Nebraska.—Prof. M. H. Swenk has published[1] upon a study of the analyses of 100 crop and gizzard contents of Pheasants collected throughout the year in Valley County, Nebraska. About nine-tenths of the food was vegetable, chiefly cultivated grains with corn alone forming two-thirds of the total. The animal food was of great variety, no item being very outstanding in quantity. Professor Swenk's conclusion is: "If the pheasant population is permitted to increase unrestrictedly in Nebraska, there will no doubt be increased injury to crops, and consequently augmented complaints by farmers; but if the birds are held down to reasonable numbers they will probably on most farms render a sufficient service by destroying injurious beetles, cutworms, grasshoppers, and other noxious insects as on the whole to balance, approximately, the harm they do to crops."

The author has done a service in summarizing the results of previous writings on the food of Ring-necked Pheasants in the United States.—W. L. M.

Systematic Bird Conservation in German Forests.[2]—Highly developed, but not widely known, is the system of bird conservation adopted by the Germans as a part of their famous silvicultural methods. The present article is a rather detailed exposition of the methods in use in the Hardt mountains, which form the northern part of the Vosges. In all essential respects the methods are those worked out by Baron von Berlepsch.

The present author, Freiberger, a former forest ranger of Germany, considers the various species of Titmice as the most important birds in relation to the welfare of the forest. Artificial nesting-boxes for this group are provided, the ultimate goal being four boxes per hectare (2.47 acres), attainable by placing a box at each corner of 50-meter quadrats. Fou rpairs of Titmice per hectare is regarded by the author as insurance against any outbreak of insects. The von Berlepsch imitation of Woodpecker holes is lauded to the total exclusion of any other type of bird-house. In the matter of winter feeding-shelters, the same praise is given to the von Berlepsch creation. Winter feeding is found to carry the species through in greater abundance, as well as to induce many to nest in the vicinity of the shelter. Depletion of the birds due to hard winters is almost entirely made up for at the end of the next breeding period, on account of the great fecundity of the species.

At the beginning of the war there were in the Hardt range 570 hectares (c. 1407 acres) of evergreen and 30 h. of deciduous forest under a system of

[1] The Food Habits of the Ring-necked Pheasant in Central Nebraska, Research Bul. 50, Nebr. Agr. Exp. Sta., 33 pp., 4 figs., Nov. 1930.

[2] Freiberger, Wilhelm, Die Einrichtigen des planmassigen Vogelschutzes, Allgemeine Forst- und Jagd-Zeitung, v. 103, pp. 232–246, figs. 1–4. June, 1927.

intensive bird conservation. Fifteen winter feeding-stations were established on 800 hectares (c. 2000 A.), a ratio almost twice as great as the one recommended.

The most outstanding feature of the system is perhaps the large-scale method of providing water for the birds. After finding the method of deepening the already existing "sloughs" to be a failure, numerous shallow wells were driven, each with a trough, into which water was pumped by a light, movable pump. As early as 1900, this system was in use by the city of Mannheim, and was started by Heidelberg in 1909, installed chiefly for the sake of the Pheasants. The preserve in the Hardt range was provided with one such bath per 30 hectares, at the beginning of the war; eventually it is planned to have from 25 to 36 per hectare. Altogether some twenty paragraphs are devoted to the detailed description of the water-supply system.

The abolition of "vermin" (without a definition), of stray cats, and the poisoning of mice are practiced. Careful planting of trees and shrubs for shelter and food is treated, together with the names of the most important food-bearing shrubs.

For the practical mind, the cost of adequately equipping and maintaining an area of 1000 hectares as a bird sanctuary is carefully itemized. Establishment costs total 13,000 marks (about $3,250), and maintenance 1300 marks annually.

One gathers from the article that Germans are alive to the value of birds in forest conservation and are bringing the full force of German efficiency to bear upon adequately preserving and protecting these allies.—A. Sidney Hyde.

The Ornithological Journals.

Bird-Lore. XXXII, No. 5. September–October, 1930.

The Dickcissel's Secret. By Dr. Frank N. Wilson.—Account of nesting in southern Michigan with excellent photographs.

Mourning Dove Behaviour. By W. H. Bergtold.—Actions of a tame bird.

Chumming with a Blue Jay. By Walter Hopkins.—Another tame bird.

'Casey'—A Herring Gull.—Still another! By J. N. Reddin.

The Blue-Wings. By William A. Paff.—Nesting at Easton, Pa.

The Glare of the Headlight. By E. D. Nauman.—A number of birds nesting from nine to twenty-five feet from the railroad rails.

In the Audubon Department Dr. A. A. Allen has another of his admirable bird biographies treating this time of the Pied-billed Grebe with excellent illustrations from his camera.

The colored plate represents the Ring-necked Pheasant.

Bird-Lore. XXXII, No. 6. November–December, 1930.

Birdcraft Sanctuary after Sixteen Years. By Mabel Osgood Wright.

The Outdoor Inn. By Laura Fenner, with photographs of birds on the feeding shelf—Nuthatch, Titmouse and Downy Woodpecker.

Hunting Goldfinches and Redpolls with a Camera. By Lowell A. Mullen.—Admirable photographs of these two species.

The colored plate represents the Belted and Texas Kingfishers with notes on their migration and plumage by Drs. Oberholser and Chapman, respectively.

Dr. A. A. Allen has a fully illustrated article on the life of the Screech Owl in the Audubon Department and the bulky report of the Audubon Society occupies 100 pages replete with matter relative to bird protection and study from all parts of the country.

The Condor. XXXII, No. 6. November–December, 1930.

Aeronautics of Bird Flight. By Sterling Bunnell.—An interesting discussion of the subject by an aviator, showing the correspondence of the curves of a bird's wing with those devised by man for similar flight. One's attention is also called to the actions of fish in an aquarium which the author likens to slow motion pictures of birds in flight as the principles are the same. From the testimony of aviators birds seldom fly at a greater elevation than 3000 ft., while as to speed airplane-birds passed showed a speed of 72 miles per hour for Canvasbacks, 55 for Mallards, and 45 for Swan.

The Wood Ibis in Yellowstone Park National. By Joseph Dixon.—With an excellent photograph.

The Territorial Concept in the Horned Owl. By Loye Miller.—Shows that individual birds establish a territory beyond which they rarely stray. The voice of the male is found to be deeper than that of the female with more regular cadence.

The pellet Analysis Method of Raptor Food Habits Study. By Paul L. Errington.—The pellet method proves to be excellent in the case of Owls, Marsh Hawk and Peregrine but not for Buteos which eject pellets irregularly with unsatisfactory results. Moreover this method does not entail the killing of valuable and interesting birds which is necessary for stomach analysis.

Incidentally the results of the Marsh Hawk study in the vicinity of Madison, Wis., show the absolutely wrong stand of those who are advocating the extermination of this bird. Eighty-two pieces of food actually recovered from birds frightened into dropping their quarry showed 39 ground squirrels, 12 meadow mice, 11 young cottontails, 8 frogs, a chipmunk and 8 small birds and remains of three small mammals not determined. The study of pellets gave approximately the same evidence.

Critical Notes on Some Yellow-throats of the Pacific Southwest. By A. J. van Rossem.—*Geothlypis trichas occidentalis* and *G. t. scirpicola* are recognized and a new form from North-central Mexico reaching Cochise Co., Arizona is described as *G. t. chryseola* (p. 298).

The Wilson Bulletin. XLII, No. 3. September, 1930.

Nesting of the Sandhill Crane in Florida. By Ernest G. Holt.—Illustrated by numerous photographs of scenery and eggs of the bird and a plate of the incubating Crane from a painting by George M. Sutton.

The Decline of the Jacksnipe in Southern Wisconsin. By Aldo Leopold.

Fluctuation of Bird Life with Change in Water Level. By E. L. Moseley.

The Economic Importance of Birds as Insect Predators. By C. N. Ainslie.

Birds of the Yellowstone National Park, with Some Recent Additions. By Emerson Kemsies.—A very briefly annotated list.

The Oölogist. XLVII, No. 9–11. September, October, and November, 1930.

Numerous notes on eggs and nesting of North American birds. In the September issue there is an excellent plea for the birds of prey by E. A. Stoner also an amusing discussion on Pintail Ducks of Alaska by "R. M. B." This article ridicules a paper in the Condor for "subspecific refinement" and "hair splitting." As a matter of fact the author showed that there was little or no ground for recognizing two forms of Pintail Duck in North America, which is apparently exactly "R. M. B.'s" opinion. "R. M. B." states that he gave the paper a "careful reading" but he nevertheless completely missed the point. As everyone is agreed however no harm has been done, but critics should be sure of their ground.

The Murrelet. XI, No. 3. September, 1930.

Nesting Observations at Moses Lake in May. By E. A. Kitchin.—Western Washington.

The Bobwhite in the Palouse Region, Washington. By J. Paul Miller.

Nesting Habits of the Steller Jay in Western Washington. By D. E. Brown.

The Wren-Tit. II, Nos. 2 and 3. April and July, 1930.

Time Limit in Crouch Concealment of the Young Killdeer. By Gayle Pickwell.—Remained in the "frozen posture" for 77 minutes. (April.)

Length and width of the home of the Snowy Plover is discussed by the same author in the July issue. Only the upper beach bench is used for nesting purposes so that its habitat is miles in length but only a few feet in width.

Bird Banding. I, No. 4. October, 1930.

A Study of the Chickadee and White-breasted Nuthatch by Means of Marked Individuals. By Wilbur K. Butts.

Notes on Protocalliphora During the Summer of 1930—Blood sucking larvae from birds' nests.

Hours of the Day when Harris's and White-throated Sparrows were Trapped During Migration. By O. A. Stevens.

The Technique of Studying Nesting Song Sparrows. By Margaret M. Nice.

Further Banding Notes from Tern Island, Mass. By Charles B. Floyd.

The Ibis. (XII) VI, No. 4. October, 1930.

The Occurrence of Sushkin's Bean-Goose (*Anser neglectus*) in the Netherlands. By F. H. van den Brink.—With a colored plate of the head.

Observations in the Swiss Alps. By R. F. Meiklejohn.

On the Birds Collected During the Fifth Expedition to French Indo-China. By J. Delacour.—An annotated list of 349 species with two colored plates. Most of the novelties have been previously described but *Oreocincla griseiceps* (p. 581) from Chapa is proposed in the present paper.

The Birds of Northern Nigeria. By H. P. W. Hutson and D. A. Bannerman.—This installment contains an introduction by Major Hutson dealing with the physical features of the country with lists of the trees and the several types of vegetation, and the first part of a well annotated list of the birds, the systematic part by Mr. Bannerman and the field notes by Major Hutson.

A Spring Tour in Eastern Spain and the Pityusae Islands. By C. B. Ticehurst and H. Whistler.—A very fully annotated list.

Some Additions and Corrections to the 'Systema Avium Aethiopicarum.' By W. L. Sclater.

British Birds. XXIV, No. 5. October 1, 1930.

A North Sea Bird Log. By Capt. D. K. Wolfe Murray.—Records of birds observed while with the fishing fleets, during 1928 and 1929.

Some Further Notes on the Birds of Bardsey Island. By W. Wilson.

British Birds. XXIV, No. 6. November 1, 1930.

Our Present Knowledge of the Breeding Biology of Birds. By F. C. R. Jourdain.—Lists species of British birds upon which there is no information as to incubation or fledgling periods.

The Spring Migration at the Cambridge Sewage Farm. By David L. Lack.—Twenty-one species of Waders and Terns seen during the spring and twenty-two in the autumn.

British Birds. XXIV, No. 7. December 1, 1930.

Breeding of the Black-necked Grebe in Ireland. By C. V. Stoney and G. R. Humphreys.—A large colony of some 75 nests discovered.

Field-notes on the Subalpine Warbler. By John Armitage.

The Oölogists' Record. X. No. 3. September 1, 1930.

Notes on Cuckoos in 1930. By Edgar P. Chance.

Some Nests and Eggs of the Black Tern. By G. A. L. Bisseling.—In Holland; with excellent photographs of nests.

Nesting of the Little Tern. By L. R. W. Loyd.—On the coast of Norfolk; illustrated by beautiful photographs of the nesting birds.

The editor has an interesting critique on Mr. Tracy Storer's "Critique of Oölogical Data" which appeared in the July 'Auk'.

The Emu. XXX, No. 2. October, 1930.

The Genus Platycercus. By H. G. Barnard and G. H. Barker.—With a colored plate of *P. adscitus*.

Notes on the Eastern Whipbird. By Pearl Hanks.—*Psophodes olivaceus*.

Photographing the Lyrebird. By Michael Sharland.—A most interesting account of this remarkable bird with beautiful photographs of its display and other actions.

A Bird Day from England to Australia.—S. S. "Miamo." By J. S. C. Elkington.—Observations on the voyage in diary form.

Some Habits of the North Island Tomtit. By Amy K. Wilkinson. A valuable account of this little New Zealand bird (*Myiomoira toitoi*).

Bird Notes from North-Eastern N. S. W. By C. Sullivan.

Observations on Birds of the Antarctic. By H. Stuart Dove.

Turquoise Parrots in Captivity. By S. Harvey.

Birds of the St. Arnaud District, Victoria. By H. N. Beck.

A Subcutaneous Avian Parasite. By K. A. Hindwood.—A fly (*Passeromyia longicornis*).

Birds Collected by Capt. Sturt in 1830 on the Banks of the River Murray.

Notes on the Gascoyne Cuckoo Shrike and Others. By H. G. Barnard.

There are numerous notes on nesting etc. interpolated among the leading articles and many excellent photographs.

The South Australian Ornithologist. X, Part 8. October, 1930.

The Flight of Birds. By F. E. Parsons.—A general resumé of the subject.

A Trip to the Diamantina. By A. M. Morgan.—An annotated list of 92 species.

Many local notes.

L'Oiseau. XI, Nos. 8–10. August to October, 1930. [In French.]

Two articles run through all three numbers viz:

A Revision of the Rhamphastidae. By Guy de Germiny.—No new species or radical alteration in arrangement.

Notes on the Ornithology of Bas-Marchoise, France.—By R. Abadie.

There are also the following:

Notes on Some Rare or New Birds Obtained on the Fifth Expedition to Indo-China.—By J. Delacour. (October.)

Description of a New Bird from Tonkin.—By J. Delacour and P. Jabouille.—*Xiphirhynchus superciliaris rothschildi* (p. 613). (October.)

In the Avicultural Section the account of the Pheasants by Ghigi and Delacour runs through August and September with the Struthious birds by Delacour in October.

There are many plates including a colored drawing of Edward's Pheasant

and a photograph of a flock of Pink-headed Ducks recently secured from India by A. Ezra.

Journal für Ornithologie. LXXVIII, Heft 4. October, 1930. [In German.]

The Birds of the Dauro-Manchurian Transition Country. By B. Stegmann (to be continued).

Remarks on the Systematic arrangement of *Emberiza schoeniclus*. By F. Steinbacher.—Twenty-four subspecies are recognized of which *E. s. turonensis* (p.480) France; *E. s. stresemanni* (p. 481) Hungary; and Portugal are described as new.

There are several articles on local bird occurrences in Europe and a description of *Astur badius chorassanicus* (p. 514) by W. G. Heptner and W. L. Stachanow, from Transcaspia.

Ornithologische Monatsberichte. 38, No. 5. September, 1930. [In German.]

Several local articles on wintering birds, the breeding of *Spinus spinus* and *Carduelis citrinella* in winter, etc.

The following are described as new: by Ernest Mayr, *Loboparadisea sericea aurora* (147) Dawong, New Guinea; by E. Stresemann, *Cyanoderma melanothorax albigula* (p. 148) and *Turdus javanicus biesenbachi* (p. 149) both from Java, and *Troglodytes t. suprapallidus* (p. 158) North Kansu. Stresemann also proposes *Megazosterops* (p. 159) for *Cleptornis palauensis* Reich.

Ornithologische Monatsberichte. 38, No. 6. November, 1930. [In German.]

Beside local articles on birds of Europe, E. Mayr discusses *Gerygone arfakiana* and *G. rufescens* Salvadori both of which prove to belong to *Sericornis*. In the further discussion of this genus *S. magnirostris stresemanni* (p. 177) and *S. m. cantans* (p. 177) are proposed as new. In a review of *Lophorina superba*, *L. s. niedda* (p. 179) and *L. s. connectens* (p. 180) are proposed as new by the same author.

Stresemann describes *Collocalia francica natunae* (p. 181) from Great Natuna; while *Erythropygia leucoptera permutata* (p. 187) is described by Grote from Benguella.

Beitrage zür Fortpflanzungsbiologie der Vögel. VI, No. 6. November, 1930. [In German.]

The shell thickness of Birds' Eggs and the Rey'sche Quotient. By M. Schonwetter.

On the Interest of Curlews in the Rearing of their Young. By E. Rosenberg.

On the Biology of Falco cherrug. By H. Grote.

On Mimicry in Cuckoos' Eggs. By Von Richard Schlegel.

Observations on the Bird Life of the Balearic Islands. By F. C. R. Jourdain.

Der Ornithologische Beobachter. XXVII, Heft 7–12 and XXVIII, Heft 1. April to October, 1930. [In German.]

Bird Life of the Camargue. By M. Gasser. (April.)

Sixth Report of the Swiss Bird Study Station at Sempach. By A. Schferli (October).

Also numerous papers and notes on Swiss birds and on bird protection.

Der Vogelzüg. I, No. 4. October, 1930. [In German.]

Theories on the History of Bird Migration.

On Bird Banding at Leningrad. By G. Doppelmair.

Numerous notes on migration and banding.

Ardea. XIX, Afl. 1–2. August, 1930. [In Dutch.]

The Ornithological Reservations of the Netherlands in 1930. By G. J. Van Oordt.—With interesting photographs of nesting Spoonbills, etc. (In English.)

On Haliastur indus intermedius. By L. C. deRuiter.

On the Maleo (*Megacephalon maleo*). By L. C. deRuiter.

Bird Banding in 1929. By G. A. Brouwer.—A voluminous report covering many species, with several photographic illustrations.

Invasion of Little Auks and Puffins in December, 1929. By F. Haverschmidt.

Orgaan der Club van Nederlandsche Vogelkundigen. III, No. 1. July, 1930. [In Dutch.]

Sushkin's Goose in the Netherlands. By F. H. van den Brink.

Baron Snouckaert van Schauburg has a review of the species and races of the genus Columba which is continued in the next issue.

Kocsag. III, Nos. 1–2. 1930. [In Hungarian with some abstracts in German.]

The Bird Organism. By J. Gilei.

Hirundo rustica in Italy. By E. Arrigoni degla Oddi.

Bulgarian Gallinaceous Birds and Pigeons. By H. von Boetticher.

A Day at the Bird Observation Station at Velenceer-See.

Notes from Norway. By H. Broch.

Banding of Parus major. By J. Pawlas.

Avicultural Magazines. *The Avicultural Magazine* (VIII, Nos. 5–11, May–November, 1930) contains colored plate frontispieces as follows (in chronological sequence); Purple-throated Cotinga (*Cotinga cayana*), Violaceous Plantain-eater (*Musophaga violacea*), Siamese Fire-back Pheasant (*Diardigallus diardi*), Lewis' Silver Pheasant (*Gennaeus lewisi*), Edwards' Pheasant (*Hierophasis edwardsi*), Spot-headed Weaver Bird (*Sycobrotus stictofrons*) and Bullock's Oriole (*Icterus bullocki*).

Leading articles are: Notes on the Birds of Dominica. By Sydney Porter (May and June).

In Search of Rare Birds in China. By Alex Hampe (June).

Pheasants. By A. Ghigi and J. Delacour (July to September).

Birds of a Sicilian Garden. By Sydney Porter (September).

The Case of the Kagu. By F. Finn (September).—With an excellent photograph of a pair of these interesting birds and a reference to a paper on their breeding etc. (La Nature, No. 2777, Jan. 15, 1928). This species, the sole representative of its family, seems to be facing extermination through the ravages of stray dogs on the island of New Caledonia where alone it is to be found. The suggestion is made that it might be introduced into some "dogless" island and its future existence assured.

Curassows. By D. Seth-Smith; and many articles on breeding and rearing of birds.

Aviculture (II, No. 5–11, May–November, 1930) presents frontispiece color plates of the Gray-winged Trumpeter (*Psophia crepitans*), Yellow Conure (*Conurus guarouba*), Derbyian Parakeet (*Palaeornis derbyana*) and three West Indian Amazons (*A. gueldingi*, *versicolor* and *imperialis*), also three plates reproduced from 'Whistler's Handbook of Indian Birds.' There is a list by L. S. Crandall of wild birds that have bred in captivity in the United States, and numerous short articles and notes on cage birds, aviaries and aviculture, well illustrated with half tones.

Ornithological Articles in Other Journals.

Lewis, Harrison F. Some notes on Birds of the Gaspé Peninsula in November. (*Canadian Field Naturalist*, September, 1930.)

Potter, Lawrence E. Bird-Life Changes in Twenty-five Years in Southwestern Saskatchewan. (*Canadian Field Naturalist*, September, 1930.)

Thompson, Stuart L. A Day with the Tufted Titmouse at Toronto. (*Canadian Field Naturalist*, October, 1930.)

Baillie, James L., Jr. Red-headed Woodpecker in Winter at Toronto. (*Canadian Field Naturalist*, October, 1930.)

Mousley, Henry. Home Life of the American Goldfinch. (*Canadian Field Naturalist*, November, 1930.)

Squires, Susan K. The Black-billed Cuckoo and Tent Caterpillars. (*Canadian Field Naturalist*, November, 1930.)

Ritchie, James. St. Kilda and the Significance of Some of its Animal Inhabitants. (*Scottish Naturalist*, May–June, 1930.)—Gannets, Fulmars, etc.

Stenhouse, J. H. Birds of Franklin's Overland Expeditions. (*Scottish Naturalist*, May–June, 1930.)

Rintoul, L. J. and Baxter, E. V. Bird Notes from Staye. (*Scottish Naturalist*, May–June, 1930.)

Stenhouse, J. H. Birds Collected by Captain Sturt in 1830 on the Banks of the River Murray. (*Scottish Naturalist*, July–August, 1930.)

Connell, C. G. The Black-Necked Grebe—First Breeding Record for Scotland. (*Scottish Naturalist*, July–August, 1930.)

Stenhouse, J. H. Birds Collected in South Africa by Sir Andrew Smith. (*Scottish Naturalist*, September–October, 1930.)

McWilliam, J. M. The Problem of the Ringed Guillemot. (*Scottish Naturalist*, September–October, 1930.)—Points out that the ringed form occurs in both the northern and southern "Common" Guillemot, and if it is regarded as of specific value four forms must be recognized.

Ingersoll, S. R. Bird Migration in Volusia County. (*Florida Naturalist*, July, 1930.)

Longstreet, R. J. Chimney Swift Banding Experiences in Florida. (*Florida Naturalist*, July, 1930.)

Grimes, S. A. Rough-winged Swallow in Duval County. (*Florida Naturalist*, October, 1930.)

Hallman, Roy C. Nesting Habits of the Black Vulture. (*Florida Naturalist*, October, 1930.)

Knight, C. W. R. Photographing the Ospreys of Gardiner's Island. (*Natural History*, July–August, 1930.)—Beautiful photographs illustrating the nest life of the species. Four of the young birds were taken to Scotland in an effort to establish them there in place of the native Osprey which is now extinct as a British nesting species.

MacCoy, C. V. A New Bird Record for North America. (*Bull. Bost. Soc. Nat. Hist.*, April, 1930.)—*Larus ridibundus ridibundus*, taken at Newburyport, January 27, 1930 (see 'Auk' 1930, p. 243.)

Hutchinson, Rachel M. Winged Whiteness. (*American Forests and Forest Life*, April, 1930.)—Albino Mockingbird at Ardmore, Oklahoma.

Bishop, H. O. The Forest was his Studio. (*American Forests and Forest Life*, April, 1930.)—A compilation on the life of Audubon with some unfortunate additions by the author regarding the much discussed meeting with Wilson. There is no evidence in the record of Wilson's life of his being "grouchy" or "selfish" and no reason to question Wilson's account of the meeting, nor any evidence that Audubon loaned him any of his drawings. That Audubon later copied one of Wilson's plates has been proven.

Sutton, George M. Bird Sketching. (*American Forests and Forest Life*, April, 1930.)

OBITUARIES.

Miss Emilie Snethlage, the distinguished explorer, died of heart failure on November 25, 1929, at Porto Velho, the starting point of the Madeira-Mamoré Railroad, Brazil. Born on April 13, 1868, at Kraatz, near Gransee, in the Prussian Province of Brandenburg, as the daughter of the Rev. Emil Snethlage, she received a private education in her father's house, and graduated in 1889 at Berlin with qualifications for teaching in high schools. After spending ten years as governess in Germany, England, and Ireland, Miss Snethlage, in 1900, took up the study of natural history at the Universities of Berlin, Jena, and Freiburg, and finally obtained the degree of Ph.D., her thesis being an investigation of the origin of the muscles in insects. In 1905, on the recommendation of Dr. A. Reichenow, she was appointed zoological assistant in the Museum Goeldi at Pará, and thenceforth, excepting several visits to Europe, Brazil was her permanent home. Miss Snethlage soon became actively engaged in the exploration of Amazonia and made numerous journeys in connection with ornithological, geographical, and ethnological researches, her most remarkable feat being the cross-country trip from the Xingú to the Tapajóz through an entirely unknown wilderness which had never before been visited by white men. On Goeldi's retirement, the learned lady succeeded him as head of the zoological section of the Pará Museum, and held that position until 1917, when Brazil entered the World War. Reinstated after the armistice, Miss Snethlage returned to Pará, but in 1922 joined the Museo Nacional at Rio de Janeiro as "naturalista viajante." In this capacity she undertook various expeditions to Maranhão, Espirito Santo, Minas Geraes, and Goyaz, explored as pioneer naturalist the Ilha do Bananal, and accompanied E. Kaempfer on his ascent of the Serra do Caparão. In 1929, she started on another trip to Amazonia which ended in her sudden death among the glorious tropical forests she loved so well.

Miss Snethlage, who had an excellent knowledge of Brazilian birds, was particularly interested in their life-history and in problems of geographical distribution, and to both subjects she has made important contributions. Outstanding among her numerous publications are the "Catalago das Aves Amazonicas," forming vol. VIII of the "Boletim do Museu Goeldi," 1914, and an ecological study on the distribution of bird-life in Amazonia (Journ. Orn., 1913). It is a great pity that she was not spared to write the account of the breeding habits of the birds of her adopted country, a work she had had in mind for many years and which she hoped to publish after retiring to her native land. Science would have greatly profited from the results of her long experiences and studies of that subject. A good many new birds discovered by Miss Snethlage were named in her honor, among them *Snethlagea*, a genus of Flycatchers, dedicated to her by the late Count Von

Berlepsch. It may justly be said that Miss Snethlage did more towards the advancement of Brazilian ornithology than anybody else since Natterer's time. She was elected an Honorary Lady Member of the British Ornithologists' Union and a Corresponding Member of the A. O. U. since 1915.—C. E. H.

Rev. John Mallory Bates, one of the oldest Associates of the American Ornithologists' Union, died suddenly at the advanced age of 84 at the Mary Lanning Memorial Hospital, Hastings, Nebr., on May 25, 1930, shortly after an operation. Only ten days before he had attended the annual meeting of the Nebraska Ornithologists' Union at Omaha, where he took an active part in the proceedings, presented a paper on the program, attended the banquet, and made an excursion to Fontenelle Forest in search of botanical specimens.

Born at Wallingford, Conn., Jan. 3, 1846, the son of Levi Whitcomb Bates and a descendent of an old Connecticut family, young Bates graduated from Trinity College, Hartford, with the degree of A.B. in 1872 and A.M. in 1875. During 1873–74 he served as vice principal of the High School, in 1876 graduated from Berkeley Divinity School in Middletown, Conn., and entered upon his life work as an Episcopal clergyman. A few years later he went West and spent the rest of his life in Kansas and Nebraska. He served as chaplain and headmaster of Bethany College in Topeka, Kans., from 1883 to 1886, and in the latter year removed to North Platte, Nebr. From 1888 to 1902, he lived at Valentine, in the Sand Hill region in the northwestern part of the state and then moved to Red Cloud in southern Nebraska, where he resided for the last 28 years.

J. M. Bates was interested in both botany and ornithology and was regarded as an authority on the fauna and flora of his adopted States. He was 43 years of age when he took up the study of systematic botany, but he published a number of botanical papers, including those on the trees, sedges, and rusts of Nebraska, short notes on the flora of certain regions, and descriptions of several new species. He was particularly interested in the economic value of fodder plants of the State and his most extended work was probably that 'On the Sedges of Nebraska,' 1914.

His publications on birds by no means indicate the extent of his ornithological activities, for he was very generous in placing his observations at the disposal of others instead of publishing them under his own name. In 1896 he turned over his notes on the birds of northern Nebraska to Prof. Lawrence Bruner for use in connection with Bruner's 'Nebraska Birds,' and some of his notes later appeared in Bruner, Walcott, and Swenk's 'Birds of Nebraska,' 1904. He was a correspondent of the Biological Survey for 36 years contributing regularly notes and observations on migration. Several of his papers appeared in the 'Proceedings of the Nebraska Ornithologists' Union,' and the 'Wilson Bulletin.' In 1900 he explained his attitude in regard to publication as follows: "It falls to the lot of some

through lack of time or ability to confine themselves to the elementary work in natural science of observing and reporting. I am one of those who are thus limited . . . I am, I regret to say, unable to make the subject anything more than an incident in my life and a side issue on the nature study I love so well." Elected an Associate of the Union in 1899, he allowed his membership to lapse after a short time, but was re-elected in 1918. He was also a member of the American Association for the Advancement of Science, the Nebraska Academy of Sciences, and a charter member of the Nebraska Ornithologists' Union of which he was elected president in 1902.—T. S. P.

Raymond Comte de Dalmas died on Feb. 4, 1930, at Paris, France, where he had been born on Feb. 5, 1862. While his name is very nearly forgotten by present-day ornithologists, he was actively engaged in ornithological pursuits towards the end of the last century. In 1893–1897, accompanied by Mr. F. de Schaeck, now connected with the University of Geneva, Switzerland, Count Dalmas on his yacht "Chazalie" undertook various cruises to the Mediterranean, Morocco (Rio de Oro), Florida, the West Indies, and Central America, and sponsored the late Eugene André's collecting trips to western Colombia and Venezuela (Orinoco-Caura basin). As a result of these enterprises, he amassed a considerable collection, and published a number of papers on the birds of tropical America in the "Mémoires de la Société Zoologique de France," the "Ornis," and the "Bulletin of the British Ornithologists' Club," describing several striking novelties. Later, his interests drifted away to entomology, and he became quite an authority on spiders. Count Dalmas was an expert chess-player and enthusiastically devoted to photography and trout-fishing. His bird collection, part of which was destroyed by accident, has been acquired by the Tring Museum and the Zoological Museum at Munich, Germany, respectively. He is survived by his widow, three daughters, and several grand-children.—C. E. H.

Chauncy Ward Chamberlain, of Boston, Mass., an Honorary Life Associate of the American Ornithologists' Union, died at Boston, on August 6, 1930, and was buried in the Mt. Pleasant Cemetery, at Arlington, Mass.

His parents were Alfred Chamberlain and Sarah Damon, daughter of David Damon a Universalist minister.

Born in Boston, December 24, 1851, he spent most of his youth in Arlington, Mass., where he went to school until, after graduating from the High School, he entered business. He first went to work for his uncle, Henry Damon, who was in the shoe manufacturing business, and stayed with him until the Boston fire in 1872, caused his uncle's failure, when he started in business for himself. Later he combined with Mr. Chase of Haverhill, Mass., forming the firm of Chase, Chamberlain & Company, which continued to do business until its affairs were wound up in 1922.

Mr. Chamberlain retired, however, from active participation in its affairs when he was 50 years old, although keeping his financial interest there; and spent, thereafter, a great deal of his time in travel, both on this continent and abroad,—winters in Florida or the West Indies, with summer trips to California, the Hawaiian Islands or Alaska, with frequent trips to Europe and the countries bordering the Mediterranean, Morocco, Egypt and the Holy Land.

From the days of his early youth, when, as a small boy he collected eggs, Mr. Chamberlain was always interested in the great out-of-doors, hunting, fishing, camping, bicycling, etc., and maintained a camp at Scituate, Mass., where he spent a good deal of his time.

Becoming more and more interested in Ornithology, as he grew older, he kept up his egg collection and, in addition, gathered together a collection of several thousand skins, mostly of North American birds, in which he was interested up to the time of his death, and which has been presented by his widow, according to Mr. Chamberlain's suggestion, to the Museum of Comparative Zoology at Cambridge.

Mr. Chamberlain joined the American Ornithologists' Union in 1885; became an active member of the Cooper Ornithological Club in 1912; joined the Nuttall Ornithological Club in 1918; and had been an Associate Member of the Wilson Ornithological Club since 1922.

He was twice married, his first wife, Miss Flora McKenzie, of Malden, Mass., whom he married on October 15, 1904 and who died on April 14, 1907, and, his second wife, Miss Blanche Jewett, of Lowell, Mass., whom he married on April 28, 1915, and who survives him.—FRED. H. KENNARD.

JAMES FRANK L'HOMMEDIEU, an Associate of the American Ornithologists' Union since 1924, died after a brief illness and attack of heart trouble at Indian Springs, Georgia, on September 14, 1930 in his fifty-second year, being born in Norwalk, Conn. in 1878. He was on annual vacation at the time and was accompanied by his wife and daughter, Miss Marjorie L'Hommedieu, who survive him.

Mr. L'Hommedieu entered statistical work early in life and came South to accept a position with the Central of Georgia Railroad, with which Company he was an auditor for thirteen years. During the period of the World War he obtained leave of absence and enlisted in war work, being stationed at Camp McLellan for two years.

He was, however, a natural leader of boys and due to an intense interest in boys' work finally became affiliated with the Y. M. C. A. His first assignment was at Ashland, Wisconsin, where he spent one year, after which he moved to Thomasville, Georgia, where he was Secretary of the Y. M. C. A. up to the time of his death, a period of eleven years.

He was greatly interested in ornithology and communicated his enthusiasm to many growing boys of the community, and was assisted by a selected group of them in his bird banding activities in the Thomasville region, where he was doing especially valuable work on the plantation

where thousands of birds had been previously banded by Mr. S. Prentiss Baldwin and his assistants. Valuable results were being secured through the recapture of birds banded in some cases many years before. The group led by Mr. L'Hommedieu were also very active in banding Chimney Swifts as part of the country-wide campaign to learn through banding more of the life and movements of these interesting birds.

His sudden death at the height of his career was a serious blow to the community and the youth of Thomasville as well as to southern ornithology. There is no one to take his place there as leader to develop the boys so ably started in bird study, nor to carry on the work they were so energetically pursuing over ground where there is especial need for continued work by the banding method.—H. L. STODDARD.

NOTES AND NEWS.

As ILLUSTRATING still another angle in the problem of wild life conservation discussed in the two illuminating papers by Dr. Phillips and Mr. Adams (antea pp. 40 and 47) we print the following, released by the National Association of Audubon Societies: Addressing the National Game Conference, being held here this week Dr. T. Gilbert Pearson, President of the National Association of Audubon Societies sounded a warning that unless hunters at once take energetic action to conserve the wild-fowl supply, public sentiment already alarmed by the decrease of this group of birds may demand an absolute closed season.

He declared "Wild water-fowl in this country have recently passed through two very adverse breeding seasons and their numbers are less today than during the life time of any one present. Drainage has taken from them at least one hundred million acres of lake, pond and marshland, thus reducing their breeding and feeding ranges. Hunters increase every year. More wardens are needed to prevent illegal shooting which is rampant in many sections. Sanctuary areas for wild-fowl are pitifully small when compared with the vast needs that exist. Where is the necessary money to come from to correct this situation? Probably not more than one person in sixty shoots ducks or geese. Will the fifty-nine agree to be taxed to supply field sport for the one? Should the hunters not bear the extra expense which now is so urgently needed, and will they do it?"

As to the means of raising this money, he said, a tax on shot-gun shells has been suggested. "A tax of one cent on each shell would produce about eight million dollars annually which could be spent for game preservation in addition to the hunter's license fee already required. It is the gasoline tax paid by people who use the roads that largely keeps up the public highways of the nation."

Dr. Pearson said that the Audubon Association was not opposed to reasonable field sports but that its business was wild-life preservation and "the American people will not willingly see another species of wild bird life become dangerously scarce."

In conclusion he urged as one immediate step that the convention recommend to the Secretary of Agriculture a substantial shortening of the open season on Ducks, Geese and Brant. "In the United States," he said, "these birds may be shot from three to three-and-one half months in the different zones. This is a longer period than is permitted for shooting deer, Quail, Grouse or any other form of wild life."

MR. JAMES E. CROUCH, Cornell University, Ithaca, N. Y., is making a study of the life history of the Cedar Waxwing (*Bombycilla cedrorum*) and desires information as to the location of these birds in numbers during the winter months. They had been abundant at Ithaca until about November 1, last when they suddenly became scarce.

Mr. B. W. Cartwright of Winnepeg, Canada writes to Dr. A. O. Gross as follows under date of November 20, 1930.

I think that you will be interested to know that the two past weeks have witnessed the arrival of abnormal numbers of Snowy Owls in the marshes at the mouth of the Red River and the south-eastern and south-western parts of Lake Manitoba.

The first Snowy Owl of the season was seen by R. Vose at Petersfield, Manitoba on November 2, a heavily barred bird. On November 10 Ray Anderson of Winnipeg reported about 100 on that date at Lake Manitoba, marshes directly north of Poplar Point, Man. E. P. Gibson says he has seen more at Langruth west side of Lake Manitoba than ever before on November 10, and J. Close counted 30 while cruising along one of the channels of the delta of the Red River on or about November 3. The local taxidermists are receiving them almost daily. It would appear that another general invasion is under way. The month has been open and mild up until November 13 when we had a light fall of snow. The weather is still mild."

So far we have heard of no occurrences of the bird farther south.

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